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THE
EDINBURGH
MEDICAL AND SURGICAL
JOURNAL:

EXHIBITING

A CONCISE VIEW

OF THE

LATEST AND MOST IMPORTANT DISCOVERIES

IN

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PHARMACY.

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Report on the Epidemic Cholera, as it has appeared in the Territories subject to the Presidency of Fort St George. Drawn up by order of the Government, under the superintendence of the Medical Board. By William Scott, Surgeon, and Secretary to the Board. Folio. Madras, 1824.

Elements of Medical Jurisprudence. By Theodric Romeyn Beck, M. D., Professor of the Institutes of Medicine, and Lecturer on Medical Jurisprudence in the College of the Western District of the State of New York, &c. &c. Second Editon, with Notes, and an Appendix of Original Cases and the latest Discoveries. By William Dunlop, Member of the Royal College of Surgeons, London, of the Medico-Chirurgical, and of the Wernerian Society of Natural History, Edinburgh, and Lecturer on Medical Jurisprudence, &c. &c. pp. 610. 8vo. London, 1825.

Academical Examinations on the Principles of Chemistry, being an Introduction to the Study of that Science. By David Boswell Reid. In two vols. 12mo. pp. 471. Edinburgh, 1825.

A Compendium of Theoretical and Practical Medicine; comprising, with the Symptoms, Diagnosis, Prognosis, and Treatment of Diseases; a General Review of Physiology and Pathology, together with an Estimate of the Present State of Medical Science. By David Uwins, M. D., Licentiate of the Royal College of Physicians in London, late President of the London Medical Society, Corresponding Member of the Medico-Chirurgical Society of Berlin, Member of the Society of Physicians of the United Kingdom, Lecturer on the Theory and Practice of Medicine, and Physician to the City Dispensary. pp. 386. London, 1825.

Outlines of Lectures on Mental Diseases. By Alexander Morison, M. D., of the Royal Colleges of Physicians of London and of Edinburgh, Physician in Ordinary to his Royal Highness the Duke of York; Physician Extraordinary to his Royal Highness Prince Leopold; Inspecting Physician of the Surrey Lunatic Houses, &c. pp. 72. Edinburgh, 1825.

The Medico Chirurgical Review, and Journal of Medical Science (Quarterly.) No. III. New Series for January 1825.

Journal der practischen Heilkunde; herausgegeben von C. W Hufeland und E. Ossan. Marz—October, 1824.

Bibliothek der praktischen Heilkunde; herausgegeben von C. W. Hufeland und E. Osann. Marz—October, 1824.

B. F. A. Tieltzel Diss. In. Med. De Transfusione Sanguinis. 8vo. Berolini, 1824.

Zertschrift Für Physiologie. In Verbindung mit mehreren Gelehrten herausgegeben von Friedrich Tiedemann, Gottfried Reinhold Treviranus und Ludolph Christian Treviranus. Erster Band Heft I. 4to. Heidelberg, 1824. Druk und Verlag von August Osswald's Universitäts Buchhandling. Many fine plates.

INTENDED PUBLICATIONS.

A Complete Edition of the Works of the late Dr Baillie, with an account of his Life, collected from the most Authentic Sources, will speedily be published by Mr Wardrop.

Professor Rosenthal in Greifswalde, has announced that he will speedily publish a detailed treatise, upon the Phoca, in which he promises to give an accurate representation of the large mesenteric gland found in that genus, exhibiting the *vasa efferentia* conveying the chyle directly to the *receptaculum*, and refuting Dr Fohmann's alleged discovery of the chyle in that animal being conveyed directly into the blood by veins, without the intervention of any *vasa lymphatica efferentia*. (Froriep. Notizen. Feb. 1822.)

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The following Publications have been received—

Elements of the Anatomy of the Human Body in its sound state; with occasional Remarks on Physiology, Pathology, and Surgery; illustrated by Twelve Engravings. By Alexander Monro, M. D., F.R.S.E. 2 vols. 8vo. Printed for Maclachlan and Stewart, Edinburgh. Price 1*l.* 18s. 1824.

Outlines of a System of Medico-Chirurgical Education, containing Illustrations of the application of Anatomy, Physiology, and other Sciences, to the principal practical points in Medicine and Surgery; with coloured Plates. By Thomas Turner, Member of the Royal College of Surgeons of London, Lecturer on Anatomy, &c. 8vo. London, 1824.

A Nosological Practice of Physic, embracing Physiology. By George Pearson Dawson, M. D. 8vo. London, 1824.

Clinical Report on Dropsies, with Observations explanatory of their Pathology and Therapeutics; with an Appendix on the Theory and Treatment of Organic Disease in general. By Robert Venables, Bachelor in Medicine, and Licentiate in Physic of the University of Oxford, Physician to the Henley Dispensary, and consulting Physician to the Poor-House. In one vol. 8vo. London, 1824.

A Comparative View of Fever and Inflammatory Complaints, with Essays illustrative of the Seat, Nature, and Origin of Fever. By Thomas Mills, M. D., Licentiate of the King and Queen's College of Physicians. In one vol. 8vo. Dublin, 1824.

Official Report on the Fever which appeared on Board his Majesty's Ship Bann, on the coast of Africa and amongst the Detachment of Royal Marines forming the Garrison of the Island of Ascension in the year 1823. By William Burnet, M. D., one of the Commissioners of the Medical Department of his Majesty's Navy, Physician in Ordinary to his Royal Highness the Duke of Clarence, and Honorary Fellow of the Imperial Medico-Chirurgical Academy of St Petersburgh. In one vol. 8vo. London, 1824.

Transactions of the Medical Society of the State of New-York for the year 1824: together with the Annual Address. By Alexander Coventry, M. D., President of the Society. Published at Albany. 1824.

Observations on the History, Use, and Construction of Obturateurs, or what have hitherto been called, in this Country, Artificial Palates, with Cases illustrative of Recent Improvements. By James Snell, Surgeon-Dentist, Member of the Royal College of Surgeons in London. Price 5s.

A Treatise on the most celebrated Mineral Waters of Ireland. By Michael Ryan, M. D., Member of the Royal College of Surgeons, London, &c. &c. &c. 8vo. Kilkenny.

Symptomatology, or the Art of Detecting Disease: a Lecture occasionally read to the Pupils at the Westminster Hospital, and published according to their request. By Alexander P. Buchan, M D., F.L.S., late Senior Physician to that Institution, &c. 12mo. London, 1824.

Manuale Medicum, or a Medical Pocket-Book for the Use of Students, adapted to the last Edition of the Pharmacopœia Londinensis. By H. L. Sanders, Surgeon. 12mo. London, 1824.

The Anatomy of the Brain, adapted for the Use of Students; comprising Directions with regard to the Method to be pursued in its Dissection, conformable to the Mode practised by most Anatomists. 12mo. London, 1824.

On Cholera, more especially as it has occurred during late years in British India, a Letter addressed to Sir James M'Grigor, M. D., Director-General of the Medical Department of the Army, &c. &c. By Thomas Brown, Surgeon, Musselburgh. 8vo. Edinburgh, 1824.

Remarks on Interstitial Absorption of the Neck of the Thigh Bone. By Benjamin Bell, Fellow of the Royal College of Surgeons of Edinburgh and London.

Dissertatio Inauguralis Medica de Partibus Ossium Excidendis. Auctore Adolpho Aem. Guil. Muhr. 12mo. Berolini.

Dissertatio Inauguralis Medica de Diabete Mellito Graviditatis Symptomate. Auctore Henr. Gottl. Bennewitz. 12mo. Berolini.

The Principles of Midwifery, including the diseases of Women and Children. By John Burns, C. M., Regius Professor of Surgery in the University of Glasgow, &c. &c. &c. Sixth Edition, enlarged. London, 1824.

Observations on the History and Treatment of the Ophthalmia accompanying the secondary forms of Lues Venerea; illustrated by Cases. By Thomas Hewson, A. B., Member of the Royal College of Surgeons in Ireland, Professor of Materia Medica to the College, &c. &c. &c. London, 1824.

THE

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PART I.

ORIGINAL COMMUNICATIONS.

I.

On the Arrangement and Description of the Diseases of Bones. By WILLIAM CUMIN, M. D., Surgeon to the Glasgow Asylum for Lunatics, and to the Lock Hospital.

NOTWITHSTANDING all that has been written on the diseases of bones, the opinions of medical men regarding these affections are, as yet, by no means clear and determined; and in proof of this assertion, I appeal with confidence to their conversation and writings. Nothing is more common than to hear a bone declared to be carious, when it is necrosed; and the same confusion and inaccuracy in the employment of these and of other terms are to be met with in the writings of some of our latest and most respectable surgical authors. Mr Crampton, the Surgeon-General of Ireland, whose abilities and information are highly and justly appreciated, says, " In caries the bone is deprived of life." * Mr Liston wishes to limit the term Caries to such ulcers in " bones as resist the natural efforts of the constitution towards their cure, and require the active interference of art." † Mr Lizars, in the remarks which he has appended to his excellent anatomical *fasciculi*, terms *spina ventosa* " an aggravated species of exostosis, where caries follows with suppuration within the bone;" and he subsequently speaks of mollities ossium and osteo-sarcoma as identical. ‡

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* Dublin Hospit. Reports, vol. i. p. 335, note.

† Edinb. Med. and Surg. Journal, vol. xx. No. 78.

‡ System of Anat. Plates, p. 117.

Mr Wilson, the late distinguished teacher of anatomy, after having described what he understands by *spina ventosa*, adds, "the term *osteo-sarcoma* has lately been used to designate this formidable disease."[*] Even Sir A. Cooper, of whose merits it is unnecessary for me to speak, appears to have confounded *osteo-sarcoma* with *exostosis;* for he has described and figured under the name of *Fungous Exostosis*, cases of disease which appear to be truly of an *osteo-sarcomatous* character; while, on the other hand, he has associated this *fungous exostosis* with an affection which has no resemblance to *osteo-sarcoma*, and is truly an osseous tumour. The illustrious Scarpa himself has not always distinguished *caries* from *necrosis* of a bone. "Caruncula, cariosum os à sano undequaque sejungit atque expellit."[‡]

In the following paper, I propose, in the *first* place, to exhibit a synoptical Table of the diseases of bones: and, in the *second*, to give brief descriptions of them, with a more extended account of that affection which appears to be least understood, and which has therefore occupied the largest share of my attention—I mean *osteo-sarcoma*.

Table of the Diseases of Bones.

I. *Ostitis.* Inflammation of bone.

II. *Hyperostosis.* Morbidly increased deposition of osseous matter, without the formation of any circumscribed bony tumour.

III. *Osteo-apostema.* Suppuration within the osseous substance.

IV. *Caries.* Ulcer of a bone.

Species 1st. *C. Exedens.* Destructive ulcer of bone.

Species 2d. *C. Ossificans.* Ulcer of a bone, with deposition of new osseous substance, having a morbid and imperfect organization.

V. *Osteo-anabrosis.* Simple absorption or erosion of bone.

VI. *Osteo-necrosis.* Death of bone.

Species 1st. *Osteon. Simplex.* Simple loss of vitality.

Species 2d. *Osteon. Regenerans.* Loss of vitality, with subsequent reparative process.

VII. *Exostosis.* Distinct circumscribed tumour arising from bone, and consisting partly or wholly of osseous substance.

Species 1st. *Exost. Cellularis.* Tumour or bony crust, enclosing osseous partitions more or less perfect.

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[*] Lectures on the Skeleton, p. 267.

[†] Surgical Essays, &c.—Essay on Exostosis.

[‡] De Penitiori Ossium Structura Comment. p. 79.

Species 2d. *Ex. Petrosa vel Laminata.* Tumour formed of craggy portions, or laminated excrescences of bone, intermixed with cartilage.

Species 3d. *Exost. Eburnea.* Osseous tumour, having the solidity and whiteness of ivory.

VIII. *Osteo-sarcoma.* Sarcomatous tumour, originating from the lining membrane of the longitudinal canals, or the cancelli of bone.

IX. *Osteo-malakia.* Softening of the bones.

Species 1st. *Osteom. Infantum.* The proportion of albuminous substance much increased. Cortex of the bone thickened, texture reticulated.

Species 2d. *Osteom. Adultorum.* Both the earthy and albuminous substance much diminished. Cortex greatly attenuated.

A tenth genus, under the designation *Fragilitas*, may perhaps by some be considered necessary, in order to complete the view of the diseases of bones; but the extreme facility with which bones are sometimes fractured, is symptomatic of several different morbid states, and therefore it cannot with propriety be admitted to constitute a separate genus of disease. 1*st*, Fragility of the bones is occasioned by the diminished proportion of albumen and superabundance of oil in the bones of the aged, as well as by the thinning of the osseous walls, which has been remarked to take place at that period of life. 2*d*, It occurs very frequently in *osteo-malakia*, both of the infant and adult, as a consequence of that disease. 3*d*, Fragility takes place in *osteo-sarcoma*, when the absorption of the bone has proceeded through a great part of its diameter. Several authors have asserted, that fragility of the bones occurs in connexion with cancer; but on this point my own experience enables me to say nothing; nor have I succeeded in obtaining any satisfactory information regarding it from surgical writers. Petit relates the case of a woman who had long suffered under cancer of the mammæ, and in whom tumours formed in the bones of the thigh, arm, and clavicle, with excruciating pain, which continued, without intermission, until fracture at the affected points took place, in consequence of slight exertion. * The case appears to me to possess all the characters of osteo-sarcoma.

Simple *nudation*, or exposure of bone, cannot, in strict propriety, be considered as one of its diseases: but it is of great consequence to distinguish this state of the osseous texture, from *osteo-necrosis* and *caries*, with which it has been too often confounded. Healthy bone, when its periosteum has been forcibly separated, presents a pinky colour with numerous minute orifices of ruptured vessels: if, on the other hand, the removal of the periosteum has been caused by suppuration, the colour of the bone, if still healthy, is white; its texture unchanged from the natural state, and no line of incipient separation can be detected around the circumference of the exposed portion. Other diagnostic symptoms of *nudation* * might be enumerated; but while those now stated remain, we cannot be assured that the denuded bone is either necrosed or ulcerated; nor should we be warranted in employing any other treatment than that simple mode which exposed bone requires.

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* Petit, Malad. des Os, t. ii. p. 309.

I. OSTITIS.

By this term is to be understood simple inflammation of bone; which, although of no unfrequent occurrence, is much less readily excited than the same process in parts of a more sensible, lax, and vascular texture. The changes which take place in the osseous substance during its inflammation, correspond as accurately as the difference of texture will admit, with the phenomena which are observed in that disease, when affecting soft parts; increased supply of blood, augmented temperature, and greatly exalted sensibility. The firmness of the osseous texture renders it more tardy to inflame; but it also aggravates to a high degree the sufferings of the patient, when inflammation has once fairly established itself.

Ostitis terminates in three ways: by resolution, accompanied, I believe, in all cases by the increased deposition of osseous matter in the inflamed part; by the formation of pus, and the absorption of the substance of the bone: and lastly, by the death of the whole, or a part of the inflamed bone.

II. HYPEROSTOSIS.

The employment of this term is rendered necessary, in order to distinguish a morbid increase of the bulk, and probably of the density of portions of bones, from those osseous tumours to which the term exostosis ought in correctness to be limited. Hyperostosis, I believe, always follows the inflammation of a bone, when that process has been arrested before the occurrence of disorganization or death of the part. Mr Howship has described, with great minuteness, the appearances exhibited by bone when inflamed, and when this addition to its substance has just taken place. The first perceptible change produced by inflammation, is a uniform enlargement of the longitudinal canals, effected by the vessels of the lining membranes, which absorb in a gradual and equal manner the substance in which they are incased. The membranes next become thickened, tuberculated and granular; and absorption now goes on in so rapid and irregular a manner, that the sides of the canals are in many points scooped out into hollows. When the inflammation has proceeded still farther, the affected portion of bone becomes tumid, and a new deposite of earthy matter is observed to have taken place.[*]

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* See a short but able Treatise by Wiesman, entitled *De rite cognoscendis et curandis Necrosi et Carie*, &c. Halæ, 1820.

Hyperostosis is not always to be traced to previous inflammation of the affected bone: it occurs after rickets, and is, indeed, the mode which Nature adopts for the cure of that disease.[†] When the constitution rallies, and a deposite of osseous matter takes place to strengthen the softened bones, the process of ossification rarely, if ever, stops within due bounds, but is in most instances excessive, sometimes to a very great degree. Hyperostosis of the bones of the skull occasionally takes place very gradually, and without exciting any suspicion of its existence, until at length epilepsy or loss of intellect, and ultimately death, are produced. Through the kindness of my friend Dr Corkindale, to whom I have been much indebted for various specimens of diseased bone, I am now in possession of the skullcap of an epileptic female, in which the bones had acquired a great increase of thickness, and are evidently much more vascular than natural. The impression of the middle artery of the dura matter is greatly deeper than common; slight risings are observable on the internal surface of the bones, and the natural concavity of the skull is in several places reduced nearly to an inclined plane by the increase of the osseous substance.

III. OSTEO-APOSTEMA.

The formation of purulent matter within the substance of a bone, which is expressed by this term, is a less frequent consequence of ostitis, than the disease which I have just considered. Mr Howship has given a very beautiful microscopical representation of the appearance of bone, when the inflammation has terminated in suppuration. The osseous walls of the longitudinal canals are there absorbed, so as to form an irregular communication between the medullary cavity and the surface of the bone; and the sides of the new channel are seen to be in a state of highly increased vascularity. Two cases of abscess within the tibia are related by Mr Hey.* A case of this nature, but in a very advanced stage, was lately seen by me in consultation. A young lady had for more than two years suffered from disease of one of the fingers, which, from its base to its middle, was swoln to three times its natural size, while it was shrunk and wasted towards the point. The swelling was white, shining, and slightly elastic, but not fluctuating; and on its surface were three pale fungous ulcers with thickened edges. On dividing the diseased parts after amputation, the knife passed through a considerable thickness of cartilage, and then entered a cavity containing pus, and the remains of the first phalanx of the finger. The fragments of the bone were much eroded, full of holes, and extremely light. The articulating surfaces of the bone were perfectly sound, and the cartilage which formed the posterior part of the swelling was found to contain a portion of new bone. The bone in this, as in almost all cases where purulent matter has formed within its substance, was in a state of decay, but certainly not necrosed; for interstitial absorption seemed to have been going on in it to the last, and no line of separation could be detected between the diseased parts and the healthy articulating extremities.

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[*] Medico-ch. Trans. of Lond. vol. x. p. 199.

[†] Some confusion has arisen in stating the composition of ricketty bones, from not distinguishing between bones which were actually in a rachitic state when analyzed, and those in which this had been succeeded by Hyperostosis. See Mr Jo. Davy's analysis of ricketty bones, and his remarks in System of Anat. by Dr Monro 3tius. vol. i. p. 41.

IV. Caries.

This term has of late been restricted, by the best surgical writers, to the ulceration of bone. But if we go back to the works of Monro *primus*, we shall find, that the term included, not ulceration only, but nearly all the diseases to which bones are subject.

Ulceration of bone, or *Caries*, is of two kinds. In the *first*, a process of destruction is going forward, without any attempt to repair the injury. In the *second*, the process of absorption of the osseous substance is accompanied by the formation of a new bony deposite, which is much more irregular in its arrangement, and imperfect in its organization, than the original bone.

The former of these species of caries I propose to name *Exedens*, or eroding. Perfect examples of it are afforded by the extremities of the long bones, after their articulating cartilages have been destroyed by ulceration; and by the bodies of the vertebræ, after the destruction by disease of the intervening fibro-cartilaginous substance. This form of caries, although not accompanied in the same bone by any attempt at a process of repair, is sometimes productive, by its irritation, of the formation of new osseous matter in a contiguous bone. On inspecting the hip-joint of a girl who had long suffered under disease of that part, I found the head and nearly the whole neck of the femur destroyed by ulceration. The surface was quite rugged, and the bone, which was morbidly vascular, could be readily crushed betwixt the fingers. On the dorsum of the ilium, and towards the edge of the sciatic notch, I observed a considerable arched ridge of newly formed bone, covered externally by cartilage, to which the contiguous muscular substance firmly adhered. This portion of newly deposited bone served to confine the upper extremity of the femur from passing backwards or upwards, and formed one side of a large cavity, at the lower part of which was the acetabulum, which showed no mark of disease, excepting a slight increase of vascularity. This species of *caries* is also exemplified in most instances of the internal decay of the osseous substance of the teeth; but I am inclined to believe that, in such cases, *caries* is often complicated with *osteo-necrosis;* some portion of the diseased surface suffering from ulceration, while another is necrosed.

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* Practical Observat. in Surgery, pp. 26 and 52.

Caries exedens is also met with in those cases where ulceration spreads from the soft parts to the subjacent bone. About three years ago, a boy came under my care with circular sores of the scalp, one of which had destroyed the soft parts to the extent of a half-crown piece, leaving the bone completely exposed. The ulceration at the circumference had already begun to penetrate the external table of the skull; and the diseased portion, which I still preserve, exhibits a pretty regular circular groove, as if eaten by some insect, or consumed by the action of an acid. A process of disorganization has evidently been going on in the centre of the exposed bone; but the eroded groove still retains the same pure colour and solid consistence as the soundest bone.

In the *second* species of *Caries*, which I have named *Ossificans*, the process of destruction is accompanied by a morbid, and generally feeble effort to form new bone. My inquiries into this subject lead me to believe, that, in the incipient stage of this form of *caries*, the bone acquires an increase of vascularity; absorption of its earthy constituents then takes place to a certain extent, and a deposition of gelatinous substance fills the vacant spaces. In strumous cases, this is intermixed with masses of cheese-like substance. * An external abscess now forms, which at length bursts, leaving the diseased and transmuted bone exposed at the bottom of the wound. If we now introduce a probe into the wound, and carry it onwards, it readily penetrates this mixture of firm jelly and osseous fibres, which latter communicate through the instrument a grating sensation. As the ulceration proceeds, the lining membranes of the bone fall into a state of luxuriant granulation, the gelatinous substance becomes organized, and a new deposition of osseous matter takes place; but it is usually small in quantity, and imperfect in its organization. After the disease has continued for some time, the bone is found to have acquired a considerable increase of diameter; and, if carefully separated from the soft parts by maceration, it is observed to be penetrated by numerous circular holes, as if perforated by a small auger, or by some insect. Spicular vegetations of bone commonly rise around these apertures, while, in other parts, the bony fibres are massed together like streaks of wet stucco. The whole affected portion of bone is very light, and its general aspect may be compared to a petrifaction of the slender fibres of moss, or the spongy sugar of the confectioner.

It is to this form of disease, which I have ventured to arrange under the head of *Caries*, that the best informed writers have appropriated the name *Spina Ventosa*. But there has existed, from the times of the Arabians down to the present day, so great an obscurity and confusion in the employment of this expression, that it would be wise, in my opinion, to suffer it to fall into disuse. No writer has been able to explain satisfactorily, the origin and primitive meaning of *Spina Ventosa*; and its signification has been so extensive, that, according to some, it included a great proportion of all the diseases to which bones are subject, and one of the diseases of joints. Dr Parr, a man of no mean literary attainments, gives as the synonyms of *Spina Ventosa—Osteo-sarcoma*, *Sideratio*, *Cancer*, *Gangræna*, and *Sphacelus*, *Ossis Teredo*, *Fungus Articuli*, *Arthrocace*, *Exostosis*, *Paedarthrocace*. †

Under such circumstances, it seems altogether hopeless to attempt to retain, with any prospect of advantage, this expression, which has absolutely nothing, either in its etymology or its form, to recommend it to our notice.

V. OSTEO-ANABROSIS.

By this term it is proposed to designate simple erosion, or absorption of bone—a process which is very nearly allied to destructive *caries*, but differs from it in the particular of being at all times unaccompanied with the secretion of pus from the surface of the affected bone. Instances of this affection are presented by bones which have suffered from the pulsating action of aneurismal tumours; and remarkable examples of the disease have been occasionally met with in the bones of the cranium. Mr Russell has detailed several cases, in which portions of bone were separated by this process of erosion. He has also seen the absorption proceed in such a manner as to leave an aperture in the cranium, without the separation of any bone, or any appearance of ulceration. * A remarkable instance of the same disease is given by Mr Wilmer, from the practice of Mr Harrold. † It is by the process of *osteo-anabrosis* that nature produces the removal of the milk teeth; and a corresponding disease is sometimes met with in the adult, where the teeth become loose, and, when extracted, their fangs are found extensively absorbed, although by no means in a state of ulceration.

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* See Mr Lloyd's excellent Treatise on Scrophula, p. 119.

† London Medical Dictionary, Art. Spina Ventosa.

VI. Osteo-necrosis.

This term appears to be preferable to *necrosis*, because the latter has been employed to denote the dry gangrene of soft parts; while, by recent writers, it has been restricted to that form of disease in which the death of bone is accompanied or immediately followed by an ossific process set up by nature to repair the loss that has been sustained. The introduction of the term osteo-necrosis enables us to avoid both of these difficulties, and to distinguish the disease into two species.

Species 1st. *Osteonec. Simplex*, when the bone merely dies, and is thrown off by the process of exfoliation. I admit that this rarely takes place without an attempt to repair the loss by the formation of new bone; but I believe that it does sometimes occur in this pure form, in the bones of the skull. The mere loss of vitality, but not the exfoliation, certainly takes place in *sphacelus* of a limb, and when the constitution sinks rapidly after the death of a portion of bone, so as not to afford time for the reparative process to commence.

Species 2d. *Osteonec. Regenerans* is the *necrosis ossium* of Mr Russell, and the *necrosis* of common surgical language. From a careful examination of several recent bones affected with this disease, one of which, now in my possession, I consider peculiarly illustrative, I have been led to adopt the opinion so ably supported by Professor Macartney,* and to believe, that, after the death of a portion of bone, the first step in the process of repair is a change in the periosteum, which acquires increased thickness and a softened cartilaginous texture; and thus altered, it forms the nidus for the superficial deposition of osseous matter. The neighbouring old bone which has not perished, also receives an addition to its substance, evidently produced by the ossific action of its own vessels; its surface becomes of a darker colour than natural, and acquires a scabrous roughness. The newly-formed bone sometimes assumes the appearance of irregular vegetations; at others it forms a continuous crust; its texture is much less fibrous than original bone, and its surface appears like melted bee's-wax, or like the new bark which is observed to extend from the edges of superficial wounds in trees. But in process of time, this newly-formed bone gradually acquires a more perfect organization, and at length its texture approaches nearly to that of bones which have never suffered from the action of disease. The result of the process of regeneration is in all cases to augment the diameter of the affected bone; and, in two instances which have come under my observation, it appeared to be distinctly increased in length. Thus *hyperostosis* takes place as a consequence of the death of bone, and of the inflammation thereby excited.

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* Transact. of the Edinb. Medico-Ch. Soc. vol. i. p. 74.

† Cases and Remarks in Surgery, p. 40.

As the newly produced bone is in most cases so situated as to confine the necrosed portion, the process of throwing off the dead part is often tedious and difficult. When necrosed bone has been long retained, it acquires a high degree of putrescence, and exhales a nauseously offensive odour. Its colour is usually ash or wood brown, and in some instances it becomes as black as coal. Through the kindness of a medical friend, I am now in possession of a specimen of diseased femur, in which this appearance is beautifully seen, as well as the thickened and cartilaginous state of the periosteum which precedes the formation of new bone. In this instance, the disease had existed for the long period of fourteen years, and yet the living bone seemed to be still receiving an increase of diameter. The offensive odour was particularly strong, proceeding evidently from the necrosed and putrid bone, and not from any ulcerated surface. Indeed, I am now convinced that *caries* is never productive of this well-known fetid odour, unless the ulcerated portions of bone be intermixed with others in a state of *necrosis*. But in hazarding this opinion, I know that I am at variance with many able practitioners, who believe that this odour furnishes a distinct proof of the existence of *carious* bone in any ulcer or sinus from which it is emitted.

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* See his Remarks in Crowther on White Swelling, 2d edition.

VII. Exostosis.

By the term *Exostosis* is to be understood a circumscribed tumour formed on a bone, and consisting wholly or in part of newly-formed osseous matter. Accurate examination of exostosis in their different stages proves, that the first step in the process is the deposition of cartilage, or of a substance resembling it, which is afterwards followed by the secretion of bone. Perhaps the most remarkable instance of this disease on record is that detailed by Mr Freke. *

Exostosis may be divided into three species.

Species 1st, *Exost. Cellularis.* In this the tumour consists of an external crust, within which are numerous bony partitions, together with a quantity of softer substance, generally of the nature of mucus, jelly, or cartilage, or atheromatous or fatty matter. A remarkable variety of this species is afforded by the existence of hydatids within the cavity of the *exostosis.* † Another very interesting form of cellular *exostosis* is exhibited by those swellings on the phalanges of the fingers and metacarpal bones, which render the hand deformed and even monstrous. Severinus, ‡ Mery, § John Bell, || Dr Munro *tertius*, ¶ and others, have described and figured such tumours. In some of them, the hand had acquired the grotesque form of a tuberous root, and in others the extremities of the fingers appeared like the talons of a bird of prey. These cases are distinctly of the nature of *exostosis*, cartilage being first secreted, and afterwards osseous matter. Severinus tells us, that in one of his cases the morbid substance resembled the boiled root of the *cyclamen*, was friable, and readily yielded to the finger; ** while M. Mery and Dr Munro *tertius* have given accurate drawings of the macerated bones of the hand, showing distinctly the newly-formed shells of bone. Remarkable cases of cellular and hollow exostosis are related by Saviard †† and Petit. ‡‡ Kul-

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* Philos. Transact. 1740.

† Keate in Lond. Medico-ch. Trans., vol. v.

‡ De Reconditâ Abscess. Natur.

§ Mem. de l'Acad. des Sciences, 1720.

|| Princip. of Surgery, vol. iii. p. 76.

¶ Syst. of Anat. vol. i. pl. vi.

** De Recond. Abscess. Nat. p. 143.

†† Nouveau Rec. des Observ. Chir. p. 302.

‡‡ Malad. des Os, T. ii. p. 298.

mus gives a case of enormous cellular exostosis, nearly lbv. in weight, which arose from the clavicle, and consisted partly of bone, and partly of cartilage, with cells containing a pultaceous orange-coloured substance resembling marrow. *

Species 2d, *Exost. Laminata vel Petrosa.* The laminated or craggy osseous tumour consists of a mixture of bony excrescences and cartilage. In this species, no osseous shell exists; and after maceration, the bony growth presents the appearance of foliated crystallizations, or craggy adherent masses. Many beautiful specimens of this form of exostosis are to be found in most collections of pathological anatomy; and a remarkable case of the disease is detailed by Boyer. † He considers this case to afford an example of the combination of *osteo-sarcoma* with *spina ventosa*; but from the very minute description of the disease which he has given, and the accompanying engraving of the macerated bone, I have no hesitation in referring it to the craggy exostosis.

In some instances of this form of disease, the new deposition consists not of osseous substance, but of the earthy salts of bone, forming a mere unorganized mass. In the Hunterian Museum at Glasgow there is a large tumour of this description, enveloping the lower extremity of the thigh-bone, the condyles, and even part of the articulating surfaces.

Species 3d, *Exostosis Eburnea*, the osseous tumour possessing the solid texture and whiteness of ivory.

Petil relates a case of exostosis of the temporal bone, in which the tumour was as large as a melon, and as hard and white as ivory. No prominence or alteration of any kind was perceptible on the internal surface of the bone. ‡

VIII. OSTEO-SARCOMA.

Osteo-Sarcoma is a disease which as yet is but ill defined, and which has served, with some authors, as a general receptacle for extraordinary and anomalous cases. Mr Samuel Cooper, whose learning and research are of a high order, and the able authors of the *Diction. des Sciences Medic.*, have presented us with very meagre articles under the head of osteo-sarcoma. So undefined, indeed, are the ideas of the author of the Surgical Dictionary on this subject, that he has referred, under that title, to a case of exostosis of the clavicle, * and to one of fungus of the autrum. †

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* Haller Disput. Chir. T. v. p. 655.

† Malad-Chirurg. T. iii. pp. 599–605. pl. 6.

‡ Malad. des Os. T. ii. p. 292.

With the view of removing some portion of the obscurity in which this subject is at present involved, I propose that the term Osteo-sarcoma should be limited to a degeneration and morbid growth of the lining membranes of the longitudinal canals or cancelli of bones, accompanied, in all cases, by absorption of the solid osseous substance. The disease is therefore essentially one of destruction of the affected bone, which is produced partly by the pressure of the enlarging tumour, and partly by the diversion of the fluids circulating within the bone to the support of this morbid growth. It always originates within the periosteum, and retains that as its investing membrane, even after the bone has been fairly divided by the absorption of its substance. The contents of the osteo-sarcomatous tumour are of different descriptions, not unfrequently having the texture and colour of an absorbent gland, sometimes presenting the appearance of a bloody-coloured fungus, and at other times resembling old cheese or cerebral matter. They have been observed also occasionally to have been converted almost wholly into a fluid resembling thick gruel or soup. ‡ The disease is generally of slow progress; and in its commencement the symptoms cannot be readily distinguished from those of chronic rheumatism, or from syphilitic pains. After some time, a tumour is perceived in the affected bone, at first firm and resisting, but afterwards becoming softer, sometimes fluctuating, and in certain cases communicating to the hand a distinct pulsation, synchronous with that of the artery of the limb, and capable of being interrupted by compressing the arterial trunk above. After a longer or shorter interval, the constitution of the patient becomes affected, hectic fever, colliquative perspirations, and diarrhœa make their appearance, and at length destroy life. Towards the close of the illness, fracture of the bone at the affected part very commonly takes place on some slight exertion, aggravating, in a remarkable manner, the general distresses of the patient, but rather relieving than increasing the distensive pain in the bone.

The following is the history of a case of osteo-sarcoma which I had under my care some years ago. Early in the month of June I was requested to see a gentleman aged about sixty, on account of a supposed rheumatic affection of above

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* Kulmus. Haller Disput. Chir. T. v. p. 655.

† Hundermark. Haller Disp. Med., T. vi. p. 549.

‡ Boyer Malad. Chirurg. T. iii.

three months' standing. He complained of severe pains in the limbs and through the pelvis, with lameness and a feeling of debility. His countenance was of a sallow and somewhat leaden colour. Pulse strong and regular, appetite tolerably good, bowels inclined to constipation. Midway between the trochanter major and the middle of the right thigh, was a tumour about two inches in length, and one in breadth, apparently occasioned by a prominence of the periosteum. Immediately under the head of the left tibia, on the mesial side of the tubercle, was a similar tumour, equally fixed and deep-seated, but smaller in size. I prescribed the decoction of sarsaparilla, and applied repeated blisters to the tumours; and after some continuance of this mode of treatment, his condition appeared, on the whole, rather improved. But about the middle of July, as the disease certainly did not show any symptoms of decided amendment, and the patient was anxious to try what benefit was to be derived from change of air, I agreed that he should proceed to the seacoast for this purpose, as well as with the intention that he should make use of the warm sea-water bath. I directed, at the same time, that the sarsaparilla should be persevered in for a fortnight longer. In the end of the month, having learned that he had rather lost ground, I consented that he should begin a mild alterative course of mercury. Under this, and the warm sea-water bath, he continued gradually to become worse until the 12th of August, when, in stepping into bed, he slipped his foot, and fractured his right thigh in the situation of the tumour. When I saw him, three days after this accident, he was in a very miserable and reduced state. Pulse frequent and feeble; skin bedewed with clammy perspiration; nights sleepless; countenance sunk and haggard. The fractured limb was lying apparently easy, in the half bent position. The tumour on the opposite tibia had increased considerably in size, was much softer and somewhat discoloured, and pulsated very distinctly. No preternatural motion or thrilling was perceptible in the ham, although carefully examined. In this state, temporary relief was obtained from hyoscyamus, black drop, and aromatic sulphuric acid; and life was prolonged, under great suffering and gradually increasing debility, until the beginning of October, when the patient sank under the accumulated load of his distresses.

The body was inspected by the very judicious practitioner under whose immediate care the patient had placed himself after leaving Glasgow; and to him I am indebted for the substance of the following particulars, as well as for a portion of the tumour and of the thigh-bone from which it originated.

One half of the right thigh-bone was in a state of disease, which, I presume, from the portion in my possession, was merely the change produced by extensive absorption; and at the fractured part, only fragments of the diseased bone remained. A large tumour attached to the bone, and distinctly originating from the membrane of the medullary cavity, was found in that part which corresponded to the external swelling. The texture of the morbid growth resembled very much that of an absorbent gland; and when cut into, it gave nearly the same resistance to the scalpel as liver or kidney. Its colour was greyish or ash brown, and the muscles in the neighbourhood were flabby and dark coloured. The tumour on the tibia seemed, like that just described, to arise from the interior of the bone, which was destroyed through nearly two-thirds of its thickness. Its texture was rather firmer than that of the tumour on the thigh, but otherwise similar; and on cutting into it, a quantity of dark-coloured blood escaped. Nothing, however, in the least resembling aneurism could be detected. On corresponding with the gentleman who made the dissection, I found him disposed to admit, that the tumour might have received its pulsating motion from the popliteal artery, in consequence of the originally interposed bone having been removed by the progress of the disease.

In the Hunterian Museum at Glasgow, there is a preparation which bears a near resemblance to the tumour in the tibia, in the case just related. The arteries of the periosteum are beautifully injected, and appear evidently much enlarged. The tumour, which is seated within that membrane, extends around nearly the whole circumference of the bone, which it has destroyed very extensively; so much so, indeed, that I have no doubt it must have been agitated during the patient's lifetime by the pulsation of the popliteal artery. Incisions have been made at different points into the tumour, exposing to view a brownish spongy-looking mass, intermixed with extravasated injection. The tibia appears to have suffered fracture a little below its middle; and fracture had also taken place in the fibula, close to its head; but both of these, especially that of the tibia, had been united long previous to the patient's death. No account of the preparation is to be found in the Catalogue, which I have carefully consulted; but the nature of the disease is obvious on inspection.

In the same valuable collection of anatomical preparations, is another beautiful specimen of osteo-sarcoma, affecting, in this instance, the bones of the thigh. The tumour has destroyed the lesser trochanter, and the whole thickness of the femur for some space. The sac is evidently formed by the periosteum; and when cut into, it exposes the ragged extremity of the divided bone, and the substance of the tumour, which is a moderately solid homogeneous mass of a light-brown colour. This, like the last, is marked on the jar, but not entered in the Catalogue. An interesting case of osteo-sarcoma of the cranial bones, accompanied by tumours in the encephalon, is given by Mr Wishart. In this instance, the distending force of the morbid growths had caused not only absorption of the bone, but separation to a certain extent of the tables of the skull.* A similar effect has also been observed in the long bones from the progress of this disease.

In the autumn of 1823, I saw, in consultation, at the Royal Infirmary of Glasgow, a patient in whom the disease now under consideration was well exemplified, as the dissection of the tumour afterwards satisfactorily proved; and through the kind permission of Dr Young, who was at that time attending surgeon, I am enabled to state the following interesting particulars which I have collected regarding it. The whole inner side of the left knee-joint, and particularly the internal condyle of the femur, was occupied by a soft pulsating tumour, which, when firmly compressed, diminished distinctly, and the fingers seemed to sink into an empty cavity. Compression of the common femoral artery stopped the pulsation of the tumour. The knee-joint was stiff and contracted, and the soft parts in the ham thickened. The patient complained a good deal of pain in the tumour, which was stated to be of ten months standing; and his health was considerably affected. After amputation of the limb, and the injection of the popliteal artery, the tumour was found to be about the size of a large fist enclosed in the periosteum, and formed within the substance of the inner condyle of the femur, which was extensively removed by absorption. It occupied also a portion of the articulating surface, the remaining portion of which yielded to the pressure of the finger like an elastic shell, in consequence of the excavation within. The tumour was closely invested at its lower part and on the inner side, by the capsular ligament, and by that which is stretched posteriorly between the femur and tibia. Its posterior surface lay close upon the popliteal artery, from which it was separated only by a small quantity of cellular membrane. All the parts exterior to the capsule were in a natural state, with the exception of a slight displacement of the adductor tendons. The cavity of the knee-joint contained, as already stated, a portion of the projecting tumour, together with a small quantity of bloody serum; and the parts within the joint were more vascular than natural. The middle and the superior internal articular arteries were enlarged, and the latter ramified over the surface of the tumour, and sent twigs into its investing periosteum. The tumour was spongy and elastic; and when laid open some days after the amputation of the limb, was found to contain a soft brain-like matter, which fell out as soon as the incision was made.

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* Edinb. Med. and Surg. Jour., vol. xviii. p. 296.

The pulsation, which, in certain circumstances accompanies osteo-sarcoma, is apt to lead to the belief that the tumour is an aneurism; but I am convinced that in most, if not in all cases of this disease, that symptom arises from the extensive removal of the bone, and the contact of the tumour with some considerable artery, or with the fat and cellular substance immediately surrounding it. When, in addition to the vicinity of an artery, the contents of the tumour are pappy or nearly fluid, and its situation is such, that, by pressure, a part of it can be forced into the cavity of a joint, the deception is almost complete; for, in this case, the tumour not only pulsates, but it can be made to diminish by the continued pressure of the hand. The case which I have now briefly related was peculiarly puzzling, from the circumstances first mentioned. A correct diagnosis in such cases can be obtained only from an attentive consideration of the history of the disease, and of the site of the tumour—the manner in which it rises when the hand is removed—and the absence of all thrilling motion in the artery above the swelling.

Osteo-sarcoma is, in the opinion of most writers, nearly allied to, if not identical with, cancer; but I am inclined to think, that although all the varieties of the disease are highly formidable, they are not all truly cancerous. The case which I have first detailed appears, from all its symptoms, and more especially from the disease having shown itself in two different places at the same time, to have been of a carcinomatous nature; while, on the other hand, the case in which the knee-joint was affected, did not, in my opinion, exhibit any of the features of cancer.

Osteo-sarcoma is the *fungous exostosis of the medullary membrane* of Sir Astley Cooper. The disease is admirably described by him under this name. Several interesting cases of it are related; and two figures are given which satisfactorily elucidate the true nature of the affection. * The expresssion by which Sir

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* Surgical Essays by Cooper and Travers, pl. 9th, figures 1 and 2.

Astley Cooper has chosen to designate this disease, is certainly ill calculated to distinguish it from affections of the bones possessing a very different nature; but he has involved the subject in still greater confusion, by connecting the disease in question with what he has named *Periosteal exostosis of a fungous character.* However formidable that affection may prove, and however similar in its external characters it may be to what he has named *fungous exostosis of the medullary membrane*; I think it will be admitted, that it is of a nature essentially different from osteo-sarcoma, when we consider the following facts regarding its structure. "Such tumours," says Sir Astley Cooper, "are generally found on dissection covered with a thickened periosteum, within which a white elastic substance is discovered, having numerous small spiculæ of bone passing in radii from the surface of the original bone: the shell of the bone is in great part remaining: I have seen this, however, in some places removed by absorption. Within the cancellated structure there appears, in some instances, to have existed a slight inflammation; for, in the cancelli, I have seen small portions of ossific matter deposited." * But to place beyond all doubt the real nature of this species of tumour, to which Sir A. Cooper has given the name of *fungous,* he adds, that he made a section of a tibia in which a large exostosis of this kind had grown, and, by immersing part of it in diluted acid, he found that "a bed of cartilage had supported the bony deposite. The shell of the bone in the remaining portion of the section continued entire; spiculæ of bone in radii passed from the shell of the bone to the periosteum, whilst in the cancellated structure, opposite to the seat of the exostosis, a very slight deposite of bone, in small nodules, had taken place." † In fact the *periosteal exostosis of a fungous character* is distinctly to be referred to the tumour already described under the name of *Exostosis laminata;* and I have no doubt that it will always be found to possess an increasing solidity and power of resistance to pressure, which are never met with in true osteo-sarcoma.

Under the head of Osteo-sarcoma, I would arrange those rare cases in which the cancellated structure of a bone is absorbed, and the cavity occupied by hydatids; although this affection is, without doubt, different from the true osteo-sarcomatous tumour. Sir A. Cooper details a case of soft tumour of the upper part of the tibia, which was found, when laid open, to contain hydatids of the commnn globular form: a large nest of them was also discovered within the bone; and the sore speedily assumed so threatening an aspect as to render amputation necessary. * He relates another case, in which the head of the humerus was reduced to an expanded shell, and several hydatids were found in the situation of the cancellated structure. Among the numerous valuable preparations in the Museum bequeathed to our University by Dr Hunter, there is one of the lower extremity of the femur reduced to a thin shell, and perforated by several irregular openings. The cavity thus exposed to view is filled with small masses of suet-like substance, and with numerous shrivelled hydatids: many of the latter are also seen lying in the bottom of the jar, like the shrunk skins of the white grape. The articulating surface of the bone is in part flattened, as if all bony support were gone within; and even the cartilage itself is reduced in thickness. An aperture in the side of one condyle is seen plugged up by an hydatid; and, in the popliteal aspect, the bone appears to be absorbed for more than the breadth of a shilling, the deficiency being covered by membrane, through which I have no doubt the artery communicated its pulsation to the whole tumour.

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* Surgical Essays, p. 195.

† Surgical Essays, p. 195, pl. ix. figs. 5 and 6.

The destruction of the solid substance of bones is produced not only by the action of morbid growths originating within the osseous structure itself, but by the spreading of disease from contiguous parts, as in cancer, and, above all, in fungus hæmatodes. To the latter of these diseases are to be referred many of those frightful cases of enormous tumour which are met with in the records of medicine. The case of the priest described by Richerand, † I conceive to have been of this nature; as well as that of the Spaniard, related and figured by Severinus. ‡ I am disposed also to refer to the same destructive affection, the case detailed by Mr Balfour in the fourth volume of the Medical Observations and Inquiries.

IX. OSTEO-MALAKIA.

I must crave indulgence for the adoption of this term, to which I have been induced by the existing deficiency of a generic word capable of denoting both *rickets* and *mollities ossium.*

Osteo-malakia varies in its characters, according to the age of the individual in whom it occurs; and hence it may with propriety be divided into *osteo-malak. infantum*, and *osteo-mal.*

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* Surgical Essays, p. 175.

† Nosographie Chirurg. t. iii. p. 133.

‡ De Recond. Abscess. Nat.

adultorum. The former is usually named Rickets; the latter is a disease of less common, although by no means of unfrequent occurrence, and is known among British writers by the names Mollities ossium and Malacosteon. In the first species, or rickets, the bones possess a spongy reticulated texture—contain a large proportion of cartilaginous substance, and, when dried, appear like bones that have been steeped in an acid. But in *osteo-mal. adultorum* the bones are reduced to mere shells, resembling thin pasteboard or the rind of cheese, and are readily bent or cut. In this species, the bones are found to contain large cavities, which occasionally communicate with the surrounding soft parts, and are filled with oily matter, resembling boiled marrow, or with masses of coagulated blood, or with a soft organized animal substance. *

Numerous highly aggravated cases of osteo-malakia in adults are to be found in the records of our profession; but none of them appear to contain more accurate details than that related by Mr Thomson. † The dissection of the subject of this case was made under the direction of Dr William Hunter, who has preserved in his museum, now deposited in our University, several of the diseased bones. (L. L. 1., L. L. 5., and probably L. L. 3.)

When the tibia was cut into in the living body in this case, the shell of the bone was of the thickness and solidity of the rind of cheese, and the whole interior was occupied by a dusky red or liver-coloured flesh, which was devoid of sensibility. No hemorrhage followed the removal of the osseous covering. The appearances presented on making incisions into the bones after death, were exactly similar. The cartilaginous coverings of the extremities of the bones were much thinner than natural; but the external surface was polished, and in some parts elevated into bumps.

I have now considered, in succession, all the diseases of bones which appear to me capable of being reduced to a regular description and arrangement; but besides these, we occasionally meet with anomalous and extraordinary cases, which have no exact parallel in the records of pathological anatomy. Of this description is the very remarkable case related by Mr Pierce; ‡ and others might be discovered by a careful examination of the transactions of learned Societies, and the collections of curious histories of disease with which the literature of our profession abounds.

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* Wilson.—Lectures on the Skeleton, p. 253.

† Medical Observ. and Inquiries, vol. v.

‡ Philosoph. Trans. for 1739.

II.

Case of Diseased Lung, with Dissection. By FREDERIC COBB, M. D., Licentiate of the Royal College of Physicians, London, Physician to the London Dispensary, and to the Margate Sea-bathing Infirmary.

On Wednesday, February 18th, 1824, I was requested by Mr Robarts of Spitalfields to visit Mr Shelly, æt. 21. At half-past 4 *p. m.* I found him bolstered up very high, his countenance and lips pale, eye without lustre, tongue slightly furred; his face, body and extremities, were very œdematous; but how much was watery effusion, or to what degree the emaciation proceeded, it was difficult to determine; nor did the history which I could gain at that time afford me much information on this point. The scrotum was greatly enlarged from infiltration; fluctuation in the abdomen was very distinctly felt, on the usual mode being resorted to; and upon the slightest pressure of its parietes, he gave great signs of uneasiness and increased labour in respiration, requesting me to desist and let him *be tapped* immediately, which was the only desire he appeared to have, and for that he pressed with much earnestness; his pulse was very small and tremulous, and only to be felt for five or six strokes, and then for about the same length of time giving scarcely the sensation of a tremor under the finger. What he had expectorated I understood to be *purulent matter*, but there was nothing left for me to see. The secretion of urine had been almost entirely suppressed for 36 hours, and but little discharge from his bowels. From what I saw and learnt, my impression was, that, in this reiterated attack of pneumonia, serous effusion into the substance of the lungs had taken place to too great an extent to leave me the least hope of his recovery. One of his most distressing symptoms, as I have stated, seemed to arise from the collection of water in the abdomen preventing the descent of the diaphragm.

At eight the same evening he died.

On inquiring into the history of his case from his mother, I was led to believe it was one of much more than ordinary interest; and although I think it turned out so, yet not for the reason I had at first expected.

In the spring of the year 1811, when at school at Canterbury, he was seized with a cold shivering fit, on account of which his master sent him home. He immediately went to bed; severe fever followed; and, in the course of ten days or a fortnight, the attention of his medical attendant was called to a large swelling in the centre of the middle bone of the sternum, which, in the course of another fortnight, suppurated. The purulent discharge continued for several months, and, to use the mother's expression, " pump'd out in a stream every time he coughed or put himself in a passion;" from which she very naturally concluded her son's disease to be an abscess in the lungs having broken externally; at the same time she said he used to spit up very considerable quantities of *matter*, mixed with blood. In this state he continued four or five months, when, by the advice of the late Dr Carter and Mr Fitch of Canterbury, he was taken to the sea-side, where, after remaining some time, his friends were informed, that if they wished him to die at home, they must remove him immediately. About two years after his first attack, however, he recovered sufficiently to return to school; and, though always ailing, and sometimes complaining of severe pain in his chest, he was never, in the course of the subsequent eight or nine years, confined to bed, or considered to labour under dangerous disease.

About a twelvemonth since, he had, for the first time, a discharge of blood *per urethram*, which returned at intervals of one or two months throughout the year; and, from their account, I should conclude, to the extent of from one to three ounces at a time.

Fourteen or fifteen days before his death, feeling himself indisposed, he took an emetic. A considerable swelling of the face and legs ensued, which subsided again two or three days before the Sunday preceding his death, on which day only he took to his bed, having followed his occupation (cook to a regimental mess) up to the day before. On the Monday he was removed to his father's residence.

On placing the body for examination, the appearance it presented was that of a full-grown person who had died after a very short illness. The œdema of the face having in a great measure subsided, we were better enabled to judge to what extent the patient had been reduced; yet his trunk and extremities were nearly as much loaded with fluid as when I had seen him before death. Both sides of his chest appeared of equal length, but the left much more prominent than the right, though, had the latter been equally so, I should have said it was narrow and ill formed. The fall on the right side was more particularly from about from the fourth to the seventh rib, from their connecting cartilages to their bend or bellies, which of course formed smaller curves than natural. A scar somewhat larger than a shilling was in the middle of the sternum, where it had been, twelve years since, the outlet to what they believed to have been matter formed in the lungs. The corrugated cicatrix was not very closely adherent to the bone; nor was there any indentation or irregularity to be felt in it; which still farther increased our doubts as to the real nature of his first disease. On dissecting round this cicatrix, we found it connected to the subjacent bone merely by condensed cellular substance, and in every way appeared the remains of a cyst of a common abscess, external to the sternum, which, from its having so little resistance forwards, had not even caused the least appearance on the hard parts behind.

A crucial incision of the integuments, and dissecting the triangular flaps back, enabled us to remove nearly the whole front of the chest without disfiguring the corpse, and get a full view of its contents *in situ.* After forming the lid, and separating it all round, we found, on endeavouring to remove it, so much difficulty from very firm adhesions, that, had we not *dissected* the *pleura costalis* away, we must have torn the lung, and rendered a minute inspection of them impracticable. This unnatural connexion of the lung to the parietes on the left side, extended more than half the convex surface of the anterior lobe, nearly the whole of the external edge, and, at its tip to the diaphragm so firmly as to tear in separating with the finger. When the adhesions were removed, nearly a pint (with what escaped and what was left) of yellow, serous matter, with small white flakes floating in it, was found: the fluid part could scarcely be called sero-purulent, for it was too thin, though its colour corresponded to what is described as such; the white flakes were coagulated lymph. This fluid had occupied the space through which the only free part of the lung (before the last attack) could have glided upon its parietes in their relative states of expansion and contraction, the limits of which were, from about an inch anterior to the angle of the ribs, round behind to the spine and roots of the lung. The lobes themselves were not adherent to each other, or to the pericardium, or the pericardium to the diaphragm. In turning to the right side, the adhesions were yet considerably more firm than on the left: for an extent about equal to an octo-decimo book cover, on the middle lobe, it was stronger than ever I had seen it in any old subject; it had, in appearance, the character of a very strong ligamentous substance, yet giving, under the knife, the sensation of cutting a piece of cartilage, and altogether preventing the free motion of the lung. I do not call this connecting medium 'thickening of the pleura,'—'cartilaginous deposite,' or 'superadded false membrane;' lest it involve an opinion on a debated point, which is, perhaps, of very little importance whether it ever be settled or not. The back part of the lung, on this side of the chest, had not even so much space for free expansion as what I describe to have been left in the other; and old and new adhesions (in all stages, from simply effused or secreted lymph, through the grades of slightly or more perfectly injected bands, up to the firmly binding medium mentioned), were so confusedly intermingled and running into each other, as to make it difficult, if it were necessary, to describe the exact effects of the more recent inflammation, of which there could be no doubt he died.

The anterior mediastinum was in every respect healthy, and no impression or mark on the inside of the sternum from the external abscess. Having detached the lungs all round, separated the cavæ and aorta from the heart, we cut through the trachea above its bifurcation, and removed the lungs and heart from the chest, that we might trace the course and ramifications of the *bronchi* to their minuter branches. The lungs, to the feel, I should observe, were, at their edges, almost everywhere indurated, and did not give the crackling sensation when pressed. This was the case at places of greater or less extent, throughout their whole superficies. On following up the smaller divisions, we were generally soon stopped by coming to a mass approaching to solidity, at some places darker than others, not exceeding the frothy matter of healthy, or only ordinarily diseased lung, yet not what I should call hepatized, except in two or three spots, which I shall mention presently. In short, these many places of which I am now speaking, appeared to me to be in a progressive state towards hepatization. On following the larger bronchial tube, in the centre of the middle lobe (right lung, of course), at about two inches from the root, we found, instead of a continuous narrowing, a long cylindrical cavity, two inches in length, in shape and size not unlike the thumb of a glove, with its palmar extremity narrowed as well as its tip; it was a perfect *cul de sac*, with a lining membrane of dark reddish blue colour, and which I believe was a superadded substance, and not condensed natural structure of the lung. Small bands or folds were in the cavity, not *cross* bands, but distributed on the sides, five or six in number, and in appearance not very dissimilar to the smallest rugæ on the intestines; they were certainly not blood-vessels;* nor were there any bronchial tubes opening into the cyst, except the direct and large outlet. Whether this cyst had ever secreted purulent fluid, I cannot take upon myself to say; but that it clearly did not at the time of death, I can affirm; for the moisture which exuded from its sides, when pressed, was nothing more than mucus of the most common character, not nearly so much presenting the puriform appearance, as was seen in every one of the larger sized bronchial tubes.

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* It may seem tediously minute to dwell a moment on these apparent trifles; but when we see Bayle, Laennec and others, deeming them of importance, and even *disputing* about their nature, it becomes important to distinguish their physical and pathological characters.

In the left lung there were two or three nodules, if I may so call them, of the most perfectly hepatized lung I ever saw. The resemblance of *acini* was very exact; and each hepatized portion was well defined as with a line, so that you might have cut them out separately. Innumerable small yellowish bodies were found throughout the lungs generally, irregularly round, the largest ones oval, and varying in size from a very small mustard seed to that of a small pea, pulpy to the feel, yet almost tenacious as the firm buffy coat of inflammatory blood. These were probably tubercles in various stages of development.

The bronchial glands at the root of the first bifurcation were enlarged, but not to any very considerable extent; the smaller ones were likewise relatively so, and darker than natural, though the alteration from healthy appearance was not more than is frequently seen in persons who die from any other disease than that of the lungs.

On opening the pericardium, fluid with a few small white flakes floating in it escaped, perhaps to the quantity of two ounces; the heart itself, though small for a person of this stature, was in every respect healthy.

It may be deemed a waste of time to animadvert farther on this, perhaps no very uncommon case; yet I cannot conceal that it gives me pleasure to add one decided and strong corroboration to the opinion advanced in a late paper "on the Sanability of Consumption." To comment on the former disease, or on that which occasioned the death of the patient, would be useless; the appearances presented on examination are so clearly explanatory of every circumstance, as to form an interesting series of pathological causes and effects. The ligamentous matter which connected the lung to the parietes on the left side, might have, and I believe had, become considerably lengthened after its first formation, so as to admit of much greater extent of gliding of the lung on the chest, in the reciprocal expansion, than would otherwise have taken place; but on the right, where the vesicular structure of the lungs was so much obliterated, that its office in effecting the renovating change in the blood must have been nearly sinecure. These morbid bands were short and firm: And to this circumstance, likewise, I think we may ascribe the late discharges of blood. He had arrived at his full stature; his various organs consequent on maturity were developed; his supply of blood became more than equal to the demand; the difficulty of transmission through the lungs increasing, from the advancing state of the tubercles, the superfluous quantity was thrown off within the bladder, and this was effected with very little apparent derangement of his health.

That the abscess which was thought to be in the lungs, discharging itself through the sternum, was merely an external one, admits of no doubt; and to my mind there is as little that an abscess (whether from independent inflammation or softened tubercle, I cannot say, though I think most probably the latter) was situated in the right lung where I have described the excavation, and co-existent with the external one. The account the mother gave me was well connected, and had every character of intelligence; the extent of deformity in the chest evidently showed that it was of no recent date, and that the contained lung must have ceased to perform its function long ago. Upwards of ten years had elapsed; and although this young man had not experienced robust health, yet he was not deprived of the ordinary enjoyments of life; and his following the profession of a cook implies, that he did not feel himself possessed of that morbid sensibility so frequently attendant on pulmonary disease.

If I had never seen or heard of the healing of the cyst of an abscess, or at least of its becoming innoxious, when seated in the lungs, this single instance would to me have been an ample proof of such an occurrence; and though we should be too sanguine were we to expect it as a frequent circumstance, yet perseverance, where our attempts may often seem forlorn hopes, will, I think, occasionally rescue a solitary individual from the grave; and, certainly, by multiplying cases like the present, the medical attendant, as well as the desponding friends, may be encouraged in their now cheerless attentions, with the knowledge that the efforts of the one, and the kindness of the other, may lead to restoration of the object of their care.

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III.

Remarks on the Operation of Lithotomy. By ROBERT LISTON, Esq., Surgeon. Fellow of the Royal College of Surgeons in London and Edinburgh, &c. &c.

THE accounts which Messrs Martineau and Barlow have lately published, of their very great success in the performance of the lateral operation of lithotomy, and the well-known favourable results which other practitioners have met with in this operation, may lead many to look upon any attempt at improvement on it as useless and uncalled for. It would appear, however, from the attempts which have of late been made to introduce the new recto-vesical mode, and to modify and add to the old high operation, that some surgeons, both in this country and on the continent, are not altogether satisfied with the operation of Rau and Cheselden, with or without its supposed improvements.

Although the operation is, in my opinion, a very perfect, when well performed a very successful one, and superior in every respect to all others which have been proposed, still we hear of many fatal cases occurring; I shall be pardoned, then, in noticing a method of proceeding which undoubtedly obviates a great deal of danger. Whether the plan is entirely new or not, is to me of little consequence;—it is certainly but little practised, if at all.

The two most frequent, I might almost say the only causes of death after the lateral operation, are exhaustion of the powers of life, from the tediousness of the operation, and infiltration of urine into the cellular substance, about the neck of the bladder, in the perineum and pelvis.

On the former of these causes it is not my intention to make any remark, though it would not be very difficult to point out the remedy. It is well known, that very few patients are constituted in such a way as to bear up and recover readily, after being detained on the operation table for the best part of one or two hours; and I have no hesitation in asserting, that the unfortunate results which take place within a short period after the operation, are in a great measure to be attributed to this cause.

The extravasation of urine (to do away with the chance of which occurring is the object of the practice I propose to recommend in this paper) is allowed by many able practitioners and authors to be a very frequent source of danger after the operation of lithotomy; and I am fully confirmed in this opinion by the many dissections which I have witnessed. Inflammation, it is true (which is made to account for much mischief) is often said to occur, and to prove highly dangerous and unmanageable: But the symptoms of infiltration, I have no doubt, are frequently mistaken for inflammatory ones, and treated accordingly. It should be kept in mind, however, that unless much injury is done to the coats of the bladder, inflammatory action is not at all likely to extend to the peritoneal covering;—that though pain come on in the hypogastric region, it does not follow that incited action of the blood-vessels has taken place: for pain and inflammation are not synonymous; and it should also be recollected, that the active means which are generally had recourse to on the slightest accession of pain, if the symptoms are not inflammatory, will only tend to hasten the patient's death.

Infiltration of urine into the cellular substance is likely to occur from various causes, as when the external incisions are made too high, so that there is no dependent passage for the escape of fluid. When the internal incisions have been made very extensive, the external ones not corresponding exactly, (and some instruments appear to be contrived for the very purpose), extravasation may take place though the incisions be ever so well executed, from the wound being blocked up by coagula, or from the edges of the external incision getting glued together, before the escape of urine has commenced. This would be most likely to occur when the patient's thighs (as is often the case) are tightly tied together, the wound being previously covered up with dressings. The urine may be prevented also from escaping, by the occurrence of swelling about the wound. The swelling may take place very soon after the operation, from blood or serum becoming effused into the surrounding texture; or it may occur at a later period, from inflammation. This will be most likely to arise, when from any cause the stone has been got away with difficulty, and when the parts have been much bruised and lacerated by the frequent introduction of instruments, and fruitless and violent attempts at extraction. If the inflammatory action is general, after a short time the chance of infiltration occurring is very slight. We may easily conceive, however, swelling of the external parts, arising from this cause, and obstructing the free passage of the urine, whilst the cellular substance internally remains quite loose and permeable. We know that, so complete is the closure of the wound in some cases, from one or more of the causes just enumerated, that not a drop of urine flows by the wound. It occasionally finds, very soon after the operation, an exit by the urethra. This unexpected occurrence may please the patient, but it should be any thing but satisfactory to the surgeon. At times the retention is complete, the urethra being blocked up by coagulum, or closed by swelling; and during the straining which follows, in the efforts made by the patient to empty his bladder, there is every chance that the urine will escape into the loose cellular substance about the neck of the viscus. But this will sometimes take place whilst a part of the urine escapes by the wound, and more especially if the external and internal incisions do not correspond, and the passage from the bladder be indirect.

When extravasation of urine from any of the causes enumerated has once commenced, it goes on with great rapidity; for the very swelling consequent upon even slight extravasation will increase the difficulty of escape by the wound, and thus favour farther effusion.

In order to do away with this danger, and also to facilitate the extraction of the stone, the external incision should be made extensive. It should be made to pass well by the side of the anus. All stricture occasioned by the *levator ani* is to be relieved, the rectum being pressed to the one side by the finger of the left hand. The staff* is then, and not till then, to be felt for in the upper part of the incision, under the symphysis pubis (where it is covered merely by the membranous part of the urethra), and the incision into the neck of the bladder made from thence. In making the incisions thus, the operator does not interfere with the management of the staff; the surgeon assisting keeps that instrument well lodged in the bladder, and hooked firmly against the symphysis pubis, so as to afford as much room as possible betwixt the urethra and rectum. It is not moved from *this position* from the time of its introduction, until the opening into the bladder is completed.

The preliminary incisions are made, of course, with a sharp-pointed knife, and it is of little consequence whether those into the bladder are performed with a beaked one or not. The greater number of those surgeons who have studied this and other operations on the dead body are agreed, that the internal as well as external incisions can be very well executed with the common operating knife. An opening sufficient to admit the finger easily is made by simply pushing the knife along the groove of the staff, and raising it a little upon the point, and through this, a stone of a considerable size can readily be made to pass; if, however, the stone is found to be of a large size, a narrow probe-pointed knife will be found the most convenient instrument for enlarging the wound sufficiently.

It has been proposed, when the stone was found of a very large size, to open the rectum; but it strikes me, that as large an opening can be obtained without having recourse to this measure, and that the coats of the gut will occupy as much space in the outlet of the pelvis when divided, as not. The rectum can, as I have found by experience, be separated from the parietes of the pelvis, and the incision be made to extend from the symphysis pubis to the sacro-ischiatic ligaments, without danger or difficulty. Even though the stone be of a large size, though a stone should break, though a great number of stones be met with—there can be no apology for the patient being longer than a very few minutes under the operation. Should there be but one or two stones of a moderate size (under the size of a hen's egg), the incisions and extraction should not occupy more than two or three minutes at most.

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* I have been in the habit of using a staff grooved betwixt the side and convex part, and of as large a size as the urethra will admit. It must be evident that a large staff with a wide and deep groove, and that groove directly presented to the operator's hand, must be more easily felt and cut into than the one in common use. The staff is forged as usual, but in bending it the necessary twist is given. Most of the cutlers in this city have patterns of the instrument, and have made it repeatedly.

It is of little consequence what instruments are employed in making the incisions, provided they be well done. The opening should be funnel-shaped, wide externally, gradually becoming more contracted, and the direction should be in the axis of the bladder, from behind, upwards and forwards. If this be the case, little difficulty will be experienced in extracting the stone; and in all probability the urine will escape without difficulty. But, as I said before, the causes of infiltration are very numerous; and, as this fatal accident may occur after the best regulated operation, it is our duty to guard against it as much as possible. This is effectually done by the introduction of an elastic tube through the wound into the bladder. I have been in the habit of using a piece of œsophagus tube for adults, about 5½ inches long, and from two-eighths to three-eighths of an inch in diameter, perforated by a common punch with a few holes at the end, which is to be inserted into the bladder. The ends of the tube are to be preferred, as being more smooth than the cut surface of it; however, tubes of the proper length, &c. may easily be constructed for the purpose, should the practice become general, as I have no doubt it will. The tube must be introduced immediately after the operation, and retained by a couple of loops and thigh-straps. This tube must be carefully cleared of coagula with a probe and bit of lint, for the first few hours after the operation, and should not on any account be withdrawn till the track of the wound has had time to become consolidated. I have generally retained the instrument for four days, but have in some cases withdrawn it on the second or third. It is evident that thus a free passage is secured for the escape of the urine; and, if we may say so, no apology left for infiltration taking place. I may add, that I have had recourse to this practice in a great many cases (many of them far advanced in life, between 60 and 80), and without any untoward accident or symptom occurring; the presence of the tube has not in any one case given rise to the least uneasiness; nor has the period at which the flow of urine by the natural passages generally takes place, been delayed beyond the usual time.

IV.

Remarks on Iritis. By J. A. Robertson, M. D., F. R. S. E., Fellow of the Royal College of Surgeons, Surgeon to the Eye-Dispensary of Edinburgh, Lecturer on Diseases of the Eye, &c.

In cases of iritis, the vessels of the sclerotic, forming many inosculations, run in straight lines towards the cornea; they disappear, however, about a line before they reach it, leaving a whitish zone, nearly of the natural colour of the sclerotic, round the cornea. It is probable that this appearance arises from the vessels passing at this part through the sclerotic, to be ramified on the inflamed iris; whereas, in a case of external ophthalmia, they run direct to the cornea. As soon as this zone appears, the iris is observed to be limited in its motions; the pupil contracted, and slightly drawn upwards and inwards, soon losing its circular form, and becoming thick and puckered. The colour, likewise, of the iris changes; but, from the quantity of *pigmentum nigrum* that enters into its structure, it does not become of so red a colour as other parts of the body do when inflamed, the colour it assumes being what would arise from a mixture of red blood with the natural colour of the iris. In some rare instances, the red colour becomes distinct. Janin relates a case in which the iris resembled a piece of raw flesh; Beer saw it of a blood red colour; and Conradi met with it of the same colour, after a wound of the eye. I have more than once seen spots of a blood-red colour, of the size of a split pea, upon its surface. In iritis, the change of colour commences at the pupillary margin; but, as the disease advances, it extends over the whole surface of the iris; occasionally, even separate vessels can be seen ramified on it. I lately had a case under my care, in which four distinct trunks, which gave off a number of smaller branches, were very evident. This case I showed to my friend Dr Farquharson, and to several of my pupils.

There is always present, at the commencement of iritis, an increased secretion of tears; but it not unfrequently happens, that the secretion is entirely arrested after the inflammation has become violent. The suppression of the secretion adds much to the severity of the disease, by depriving the eye of that fluid which is necessary to facilitate its motions, and those of the eyelids. The eyelids are not much affected, unless the complaint be conjoined with inflammation of the conjunctiva. The vessels, in iritis, have a peculiar pinky colour, and appear evidently to be seated beneath the conjunctiva. The system is affected in proportion to the violence of the inflammation. When the attack is severe, the pulse becomes rapid and strong; the skin hot and dry; and the countenance anxious and flushed. The patient complains of want of sleep; and sometimes delirium is present. Even from the commencement of iritis, the patient complains of severe pain, confined, at first, to the neighbourhood of the frontal sinuses, and bottom of the orbit, but quickly extending to the temple and back part of the head. The pain, however, is most severe over the eyebrow; and it is rare to meet with iritis unaccompanied by it. Occasionally, the pain comes on in paroxysms, most commonly beginning towards evening; it reaches its height about midnight, and goes off about four or five in the morning. The patient generally complains of fiery sparks and flashes of light before the eye, which indicate the severity of the disease, and that the retina also is affected. In no case of ophthalmia can we form any just idea of the severity of the inflammation, or of the degree of pain which a patient suffers, from the appearance of the eyeball; for those parts which are deep-seated, and which are most affected by light, become, even when slightly inflamed, peculiarly sensible to its impression.

Iritis may terminate in resolution, in effusion of coagulable lymph, in effusion of a puriform fluid, forming hypopyon, in abscess, or in paralysis of the iris. The pupil, as I have already stated, is contracted, even at the commencement of iritis; but when coagulable lymph is effused, the motions of the iris are completely lost, this membrane remaining firmly dilated and immoveable under every change of light. When the effusion is considerable, it is seen hanging in tufts to the pupillary margin of the iris, or stretching in bands across the pupil, or forming adhesions between the central part of the capsule of the lens and the iris. These adhesions impart to the pupil an irregular shape, and revert the edges of the iris. The effusion varies much in thickness and opacity. Sometimes it is in such quantity, and of such density, that the patient is completely deprived of the sense of light. I am at present attending a patient, with my friend Mr Wishart, in whose left eye the effusion is so great, that the sight is completely lost. A single vessel is distinctly seen extending across the pupil through the effused lymph. In the right eye also a considerable effusion has occurred; but with this eye, the patient can see to read, although with some difficulty. I have often met with cases, in which the vessels organizing the lymph, could be distinctly traced. In some instances, the effusion is so slight, that the motions of the iris are limited, without any other impediment to sight being produced.

When a puriform fluid is secreted, and effused into the anterior chamber, the disease is termed Hypopyon. When the disease ends in hypopyon, it is known by the remission of pain, and by a slight streak of yellow round the lower margin of the cornea. If the hypopyon increase to such an extent, that the margin of the pupil is covered with the matter, the pain, which had diminished at the commencement of the effusion, returns with increased violence, owing to the distension of the eye, which the matter produces. If the inflammation continue, the layers of the cornea become separated, by an effusion of purulent matter between them; and at last this membrane gives way at its middle and weaker part, when a copious discharge of matter takes place, mixed with blood, carrying along with it the lens and its capsule, and frequently the vitreous humour.

Another termination of iritis is, by an abscess forming in the substance of the iris itself. The situation of the abscess varies; but it occurs most frequently on or near the pupillary margin, where the effects of the inflammation are always most evident. The inflammatory symptoms, on the formation of the abscess, do not abate, as happens in hypopyon. The abscess of the iris may terminate in two ways—it may either burst, as most frequently happens, and the matter be discharged into the anterior chamber forming hypopyon; or the matter may be absorbed as the disease goes off. In two cases I have seen the iris ulcerate, after the discharge of the matter of the abscess, and leave a communication between the anterior and posterior chambers of the aqueous humour. In one case, under the care of Mr Dupuytren of the Hotel Dieu, this happened in two places, leaving the patient as it were with three pupils.

In iritis, the iris is sometimes pushed forward towards the cornea, assuming somewhat of a conical shape, the pupil forming the apex. I have most frequently observed this position of the iris, when the complaint was of some duration. I have also seen the iris in close contact with the cornea (the anterior chamber being thus completely destroyed), and in some rarer instances adhering to the cornea, generally by its pupillary margin, and by a single point.

When inflammation attacks the iris of one eye, the iris of the other is very apt to become inflamed also. Mr Wardrop relates a case, in which this was very evident: "The iris of one eye being inflamed in consequence of a punctured wound, soon after which the iris of the other became similarly affected." This case is valuable, as it shows how apt disease is to attack a similar tissue, even when the original complaint was caused by an accident, and not excited by any constitutional affection.

Causes of Iritis.—It is stated by almost every author I have read, as a wonderful fact, that mercury both causes and cures iritis, and indeed that it is its most frequent exciting cause; it would be wonderful, if this were in reality the case. But it appears to me, that mercury *alone never* causes the disease. It may act as a *predisposing*, but never as an *exciting* cause. The reason why iritis appears to be produced by mercury is, that this mineral, by deranging the natural functions of the system, and by the confinement that is generally necessary during its exhibition, renders the body peculiarly liable to be affected by the impression of *cold*, which appears to me to be the most frequent cause of iritis. I think that I am supported in this opinion by the following facts, viz.

1*st*, The greater number of patients that I have had an opportunity of seeing affected with iritis, while their systems were under the influence of mercury, were conscious of having been exposed to cold shortly before the attack.

2*d*, In those cases, other effects, considered as arising from cold alone, were present, such as an increased discharge from the nares and fauces, rawness of the throat, &c.

3*d*, Inflammatory affections of other organs are frequently caused by exposure to cold, under similar circumstances; as inflammation of the lungs, bronchiæ, and intestines, none of which have ever been considered as produced by mercury alone; and, lastly,

4*thly*, In the greater number of iritic cases that have been under my care, the patients neither were, nor had lately been under the influence of mercury, and nearly all of them attributed the complaint to cold. Besides, if mercury caused iritis, this disease ought to have been of more frequent occurrence some years ago, when ten times as much mercury was used as now a days; but I do not find that this was the case.

During last year, eighteen cases of iritis were under my charge—of this number, only *four* were under the influence of mercury. *Twelve*, had never undergone a mercurial course. In one instance, the disease was evidently produced by a wound of the iris. Of the *four* patients, who were under the influence of mercury, the first left a warm bed to go to the water-closet, which was out of doors. The second, after having had his hair cut, walked to the top of Arthur's Seat, where, overheated with the exertion, he sat down with his hat off. The third, having a slight attack of lumbago (by the recommendation of some friend), poured cold water over his loins. The fourth, was a person engaged in repairing the roads. He lay down on damp grass during his dinner hour. Within the last few weeks, a gentleman put himself under my care, in whom iritis was evidently produced by bathing in the sea, while taking mercury for syphilis; the eye became inflamed the same evening. In these, I continued the use of mercury, even in greater quantity than had been previously exhibited, and in all of them with the most beneficial results. In many of the other cases the exposure to cold was not so evident.

Mr Travers, who, with other authors, believes that mercury both causes and cures iritis, attempts to explain the MODUS *operandi* in the following words:—"The sound state of a part presents the same distinction to a diseased part as the opposite states of disease to one another; and that as two morbid, but contrary actions, may go on at the same time, and be excited by the same cause, so there is nothing incompatible with the power of mercury to produce that effect in a healthy eye, which it is capable of obviating when excited by another cause." I cannot, however, say that Mr Travers is very happy in his illustration.

I do not mean to assert that *all* cases of iritis arise from exposure to cold. Iritis may be produced by wounds of the iris, as sometimes happens in performing the different operations on the eye, or from accident. It may arise from external inflammation (more especially when treated by stimulant applications when in the acute stage), passing into the internal parts of the organ, from syphilis, and frequently even without our being able to assign any probable cause for the disease.

Treatment.—From the symptoms of iritis, it is evident, that, at the commencement of the attack, blood-letting is the first remedy to be employed. The quantity of blood that is to be drawn, must be proportioned to the effects it produces on the system and on the disease; but it may be observed, that one copious bleeding, at the commencement of the disease, has much more effect in arresting its progress than repeated small bleedings. In severe cases, blood ought to be abstracted, if the strength of the patient will admit of it, till syncope, or a state nearly approaching to it, be produced, the bleeding is to be repeated as often as the symptoms require. When the system has been sufficiently lowered, we should have recourse to topical bleeding and blistering. Blisters, when injudiciously applied, do much mischief. If they be used when there is a febrile excitement of the system, they must add to the excitement. When applied, as is frequently the case, too near to the inflamed organ, instead of demolishing, they increase the inflammation. This fact I have had many opportunities of observing. In two cases of amaurosis, the application of blisters over the eyebrows produced ophthalmia, when no trace of this disease had previously existed. In ophthalmia, I consider the back of the ears, and the nape of the neck, the best situation for the application of blisters.

The medicine, however, that is chiefly to be relied on in iritis, is mercury. And to Dr Farre, who was the first in this country who introduced the use of mercury in iritis, we are indebted for this most important improvement in the treatment of this disease. But the use of this medicine in iritis was known to Bëer, Benedict, and other German oculists, long before its introduction into this country. In iritis, the system is to be affected with mercury as rapidly as possible; for this purpose, in severe cases, I frequently order two mercurial pills to be taken every hour, combined with opium, if they affect the bowels with griping or purging. The supra-orbital region is to be well rubbed twice a day with mercurial ointment, mixed with powdered opium. The relief from pain, which the patient often experiences from the latter application, is quite astonishing. As soon as the system becomes affected with mercury, the patient experiences a very considerable abatement of the pain and feeling of fulness and distension of the eye. The sight becomes clearer, and the irregular and contracted state of the pupil and the effused lymph begin to disappear. The redness of the external parts diminishes, and the iris assumes its natural colour. These effects are almost invariable; indeed, I do not remember a single case, in which the pain was not relieved as soon as the syetem was affected. Last winter, I was requested by my friend, Dr Mackintosh, to visit a gentleman, surgeon to the —— regiment, who laboured under iritis. Blood-letting had been carried to a considerable length before I saw him, without any marked benefit being obtained; but so great was the relief he experienced from the use of mercury, that he informed me, that, notwithstanding his objections to the medicine, he was confident it was the mercury alone which saved his eye; and I fully believe, that if mercury had not been used, he would, in all probability, have lost his sight. Indeed, I have seen many eyes lost from this disease, which, I think, might have been saved, if mercury had been employed early in the disease, and carried to a sufficient extent.

When lymph has been effused, mercury is absolutely indispensable. It is the only remedy with which we are yet acquainted that can prove serviceable—perhaps iodine might be used with advantage.

The extract of belladonna, or hyoscyamus, when used early in the disease, not unfrequently entirely prevent the irregular contraction of the pupil. They may be besmeared in considerable quantity over the eyebrow, or be made into a small plaster and applied to the temple. In the course of a few hours, occasionally much sooner, and at other times not till after a longer period, they begin to dilate the pupil. When the effect is but slight, a strong solution of either of these substances may be dropped between the eyelids every second or third hour. When no effusion has taken place, the pupil will be regularly dilated; but when there are adhesions between the iris and other parts, the dilatation will, of course, be merely partial. It is often necessary, when lymph has been effused, to continue their application for some length of time after the other remedies have been discontinued, in order to secure the future regularity and natural functions of the iris.

As the extracts of belladonna and hyoscyamus are apt to lose their powers, a fresh application should be made daily. When the inflammation is severe, their effects on the iris are scarcely perceptible; they will, however, prevent the pupil becoming still more contracted; but in proportion as the inflammation is subdued by other means, the advantage of their application becomes more apparent. It is on this account that hyoscyamus and belladonna have been recommended by some practitioners in this country, and especially by Barratta in Italy, as a powerful remedy in iritis. They say that, as soon as their effects on the pupil are produced, the pain and other symptoms disappear; but the truth is, that they merely indicate the cessation or diminution of the inflammation, without contributing in themselves to this desirable end. To conclude, the chief diagnostic marks of iritis are, the change of colour of the iris; the irregularity and puckering of its pupillary margin; the limited motions of the iris; the effusion of lymph; the iris drawn to one side, and appearing to be pushed forward towards the cornea; a general cloudiness of the anterior chamber; the blood-vessels of the conjunctiva running in straight lines towards the cornea, but stopping when within about a line of it, and leaving a white circle round the cornea; the peculiar pinky colour and situation of the vessels under the conjunctiva; the pain being almost always most severe over the eyebrow, and sometimes occurring in paroxysms.

The treatment to be pursued is, the free use of the lancet; the rapidly affecting the system with mercury; the dilating of the pupil; the rubbing the temple with ung. hydrarg. cum opio; and the internal exhibition of opium to procure sleep, and to prevent the mercury acting on the bowels. Topical bleeding, blisters, purgatives, and other auxiliaries, are, of course, to be brought into use.

6, *Queen Street, Edinburgh,*
12*th October*, 1824.

V.

Case of Hysteric Cough. By Martin Sinclair, M. D.

October 18th, 1823.—Betsey Robertson, anno ætatis 18, servant, of a robust constitution and sanguine temperament.

For about a week past had been complaining of rheumatism of the left side of the head, accompanied with slight pyrexia. For this, several medicines were used, but without much relief; a blister was then recommended, which the patient refused to apply. The complaint continuing nearly stationary for several days, the patient was induced to consent to the application of the blister behind the ear on the evening of the 20th; and by the following morning it had risen well, with removal of the headach.

During the whole of the 21st, the patient remained in bed, and continued free from pain. She passed a good night, and on the following morning resumed her usual avocations.

On the evening of the 22d, about 11 o'clock, being requested to visit the patient, I found her complaining of general headach, with which she had been affected almost the whole of the evening;—pulse natural, tongue clean. As she appeared fatigued and exhausted, 50 drops of laudanum, from a thin-necked half ounce phial, were administered, mixed with a little water.

Immediately after the exhibition of this draught, the patient was seized with a paroxysm of coughing which continued, without intermission, for a considerable time. Being apprised of this about 12 o'clock, I recommended a little warm gruel to be given, in the expectation of allaying the cough.

October 23d.—Passed a bad night, the cough having continued without intermission, the paroxysms recurring every two minutes; no dyspnœa between the paroxysms, and no expectoration. Early in the morning some opium lozenges had been taken, but without affording any relief. She now complained of pain in the right side, aggravated by the coughing; headach continued, pulse natural, tongue clean, no thirst, and bowels reported regular. Upon examining the throat, not the smallest cause of irritation could be discovered, the *uvula* and *velum pendulum palati* only being slightly reddened. 12 ounces of blood were now abstracted, which produced faintness; and on laying the patient in a horizontal position, the paroxysms of coughing recurred with redoubled violence. On leaving the patient, a moderately raised position of the head and quietness were recommended, considerable relief being anticipated from the bleeding.

12 o'clock.—Cough continued as formerly. I was now informed, that about the beginning of July last, the patient was seized with several violent hysteric paroxysms, which affected her whole body, and that about a year previous, when in the country, she had been similiarly affected; catamenia reported to be regular.

An emetic of ipecacuan and tartrate of antimony was now exhibited, and an hour afterwards a dose of Glauber salts.

5 o'clock *p. m.*—Emetic and cathartic operated well; cough continued as formerly; pain of side somewhat relieved; headach almost gone; pulse 72; blood drawn not sizy. A mixture of sulphuric ether and aromatic spirit of ammonia, was prescribed, and ordered to be given in sufficient doses, every half hour.

11 o'clock *p. m.*—The anti-spasmodic mixture was regularly taken; no abatement of the cough; pulse 80, soft; countenance pale. The sufferings of the patient being very distressing, she entreated me to repeat the bleeding. This I declined, but administered the following draught.

> ℞ T. assafœtidæ ʒii. T. opii minim. xxx. Aq. menth. ℥j. ft. haust. statim porrigend.

On approaching the bedside of the patient, she expressed the strongest aversion to the taking of this draught, or any other medicine. This resolution however was easily overcome, and the draught was at length taken. The following infusion was prescribed.

> ℞ Gr. ferul. assafœtid. ʒij. Aq. bullientis ℥xvj. Infunde ad focum per horam, cola. Sumat ægra unciam omni hora.

October 24th.—For about an hour after the exhibition of the draught the coughing was increased, but it gradually subsided, and upon the whole she passed a pretty comfortable night; towards morning the paroxysms returned, and continued with as little intermission as formerly. None of the infusion of assafœtida has been taken; no headach, pulse natural, tongue rather foul.

8 o'clock *p. m.*—No abatement of the paroxysms; pulse 60, soft; considerable thirst, with loaded tongue.

℞ T. valerian. ammon. ℥j. Cujus sumat ægra cochlear. minus omni hora ex aquæ ℥ij. Capt. opii gr. i. hora somni. Cras primo mane Capt. P. jalap ℈j. T. zingiber. Calomel āā gr. v. ex quovis vehiculo crasso, post horas sex repetendus, si opus sit.

October 25th.—Passed a bad night; coughing continued as described. About two tea-spoonfuls only of the tincture had been taken. One powder was administered this morning; pulse natural, tongue loaded.

I intimated to the patient that if the coughing continued in the course of the day, the application of a blister would be necessary, to which she strongly objected.

Contr. T. valerian.

5 o'clock *p. m.*—No alteration in the coughing. Both powders have been taken, but without effect.

℞ Fol. sennæ. ℥ss. Aquæ ℥xvj. Fiat. inf. partitis vicibus sumendum.

11 *p. m.*—Powders have operated well; some of the infusion has been taken; almost free from cough.

Contr. infus. sennæ.

October 26th.—Passed a comfortable night. No cough. Some appetite for food.

Contr. infusum.

5 *p. m.*—In the course of the day the patient got out of bed, and felt herself almost free from complaint,—the cough recurring only at very distant intervals. From this period her convalescence progressively advanced; appetite natural, bowels regular, good nights. The following medicines were then prescribed.

℞ Pulv. cinchonæ ℥j. Valerianæ ʒij. Zingiberis ʒj. Misce et divide in pulv. xxiv. One to be taken twice a day in water.

℞ Pil. aloetic xxiv. 3 or 4 occasionally.

Remarks.—Considering the symptoms of the above case, little doubt can exist as to the nature of the disease. The patient was a young woman of a sanguine temperament, and possessed of considerable nervous sensibility. She had previously experienced several attacks of hysteria affecting her whole body; and I had therefore no hesitation in pronouncing her present complaint a modification of that Protean disease.

Sydenham observes, "Nonnunquam hysteria pulmones obsidet unde æger creberrime tussit, et fere sine intermissione, nihil prorsus expectorans; et quantumlibet hæc tussis species non ita valido nisu thoracem concutiat, atque illa quæ convulsiva dicitur, explosiones tamen longe frequentiores sunt, æger preterea non ita sensu valet. Hæc autem tussis hystericæ species oppido rara est, fœminas pituita scatentes præ cæteris exagitat." In like manner, Sauvages takes notice of an hysteric cough; but few cases seem to have presented themselves to his notice, as he refers principally to the above description of Sydenham, and adopts his mode of treatment.

Upon reviewing the description of this disease by Sydenham, and at the same time taking into consideration his mode of treatment, it appears that the cases which he witnessed were of a chronic nature, and differed materially from that now under consideration. Sydenham remarks, that the hysteric cough, although of rare occurrence, chiefly affects women of a phlegmatic constitution—that the senses are disordered, and that the breast is not much shaken. In his treatment he chiefly depends upon opiates. The case of B. Robertson differs considerably from this description;—the patient was of a sanguine constitution; the breast was violently shaken, almost convulsively; and, what is remarkable, the attack immediately succeeded the exhibition of a full dose of the tincture of opium. The paroxysm continued without intermission for several days; and, during the whole period, the patient's senses were not in the least disordered.

For the cure of hysteria, fetids, antispasmodics, and uterine deobstruents have been recommended by the most eminent authors; and, in addition to these, several other medicines were administered in the above case, but without any good effect. Before I was informed of the patient's former ailments, I merely used palliatives, such as might have been beneficial in cases of cough arising from any accidental irritation; but failing in my endeavours to procure relief, and now knowing something of the patient's previous history, I exhibited an emetic and cathartic, such as I conceive might have had some effect in breaking the morbid concatenation of symptoms, or of resolving the morbid sensibility.

These means failing to produce the desired effects, fetids and antispasmodics were used, and continued for some time without the smallest appearance of relief. I therefore, although the bowels had been regular during the whole course of the disease, administered the most powerful purgatives, with the view of producing some impression upon the nervous system; and such was the result, that after the full operation of these medicines, the cough almost entirely subsided, the paroxysms recurring only at very distant intervals during the patient's convalescence. The cure, therefore, I am disposed to think, depended solely upon the operation of the cathartics causing an agitation of the whole system, and thereby resolving the morbid sensibility. To some perhaps it may appear that the antispasmodics were of great utility in effecting the cure; but, upon reviewing the case it will be seen, that little or no relief was obtained till after the exhibition of the purgatives.

The above case may perhaps furnish a few practical hints. The disease succeeded the exhibition of an opiate. Bloodletting had no effect in checking the paroxysm of coughing. Fetids and antispasmodics likewise failed in producing any beneficial change; but the powerful purgatives exhibited on the 25th completely removed the paroxysm, and apparently by the impression produced on the nervous system.

P. S. It may be worth mentioning, that up to this period the patient has continued free from any pulmonary affection.

Edinburgh, 10th September, 1824.

VI.

Case of a peculiar Ulcerous Affection, successfully treated, with Observations. By JAMES BRAID, Corresponding Member of the Wernerian Society of Edinburgh, and Surgeon at Leadhills.

MRS M'K. ætatis 44, married, and has had a numerous family; catamenia still continue regular; had in youth gone through variola, from which the face is still marked with numerous but distinct pits; general health has been always very good. She states, that about fourteen years ago she became affected with a trifling sore on the back part of the head, to which she paid little attention, and rested satisfied with merely having it washed occasionally, and applying a greasy cloth to prevent her cap from adhering to it.

In a very slow but gradual manner it descended to the neck, the parts formerly occupied by the sore becoming healed over about as quickly as ulceration was spreading in other directions; and thus, the actual extent of open sore was never very great at any one time, and indeed, for the most part, occupied about the same extent of superficies. Owing to this circumstance, the discharge being small, and suffering very little pain, it still attracted very little attention, and, consequently, no medical or surgical advice was called for. Another circumstance which tended greatly to impress the patient's mind with the unimportant nature of " such a trifling sore," was, that it always cicatrised completely after she had been about two months pregnant, and continued so until about two months after she began nursing;—but then, it again broke out, by some of the tubercles which had not advanced to suppuration previous to the healing of the ulcer, now becoming inflamed, and running on to suppuration; and, when they had discharged their contents, becoming centres from which the ulcerative process again proceeded in all directions, and continued to advance as formerly, until the same term of pregnancy again arrived, when cicatrisation again took place, as already noticed. From the first appearance of the affection she has born six healthy children, all at single births; and, on each occasion, the state of her health, and the progress and appearance of the sore, were as similar as possible to what has been described above, both during pregnancy and the period of nursing—her youngest child is now about four years of age. It may be also proper to remark here, that during the term of pregnancy she always became thin and of spare habit of body; whereas she invariably became of full habit, or rather approaching to corpulency, whilst nursing.

I was first consulted about twelve months ago; and no other medical man had ever seen her for this affection. Indeed she had, till about that period, contrived to conceal it from her nearest relatives. During this long series of years it had slowly, but gradually and regularly, travelled over a great extent of surface, having occupied, during this period, the whole of the back part of the head and neck, and extended some way down between the shoulders; then, returning, it directed its course upward and forward along the right side of the neck; then, spreading downward, it directed its course along the upper part of the chest, involving in its course the upper half of the right mammæ; when it had advanced as far forward as the sternum it turned upward, and advanced as high on the neck as the thyroid cartilage; from this it directed its course backward and upward, still on the right side, and never reaching lower than the boundary formed by the cicatrices of the former ulcers, till it at length, behind the right ear, reached those parts which were first of all affected with the disease. From this it advanced downward and forward, and had advanced over the angle of the jaw, on the right side, and beyond the parotid gland, by the time I first saw the patient.

On examination I found the surface of the sore to be extremely irregular, with hard, rugged, and elevated edges, and assuming very much the appearance of that affection denominated *noli me tangere*; but it seemed also to differ from that disease in this respect, that it not only spread by ulceration destroying the parts by immediate contact; but it also seemed to contaminate the surrounding parts in a peculiar manner, by absorption, and thus to claim some alliance to cancerous ulceration.

The surface of the ulcer, as has already been observed, was very irregular; the deepest parts—none of which penetrated below the subcutaneous cellular membrane—showing granulations secreting pus of pretty healthy appearance; the more elevated portions seemed to be the cellular substance, which had undergone a peculiar change, assuming very much the appearance of *well macerated ligament*, being tough, insensible, and fibrous in its structure; and it was to this principally that the sore owed its foul appearance. The margin of the ulcer where it was making encroachments was extremely ragged, and undermined in many places, with an inflamed margin of about a line and a half in breadth, and rising rather abruptly above the surrounding skin, hard, and somewhat painful to the touch. Beyond this the skin retained a healthy appearance; but about half an inch from the margin of the ulcer, on that quarter where it had not formerly been attacked with the disease, a few tubercles appeared, of different sizes, and at irregular distances from each other, hard, slightly inflamed, and elevated a little above the surrounding parts. At length suppuration took place, the tubercles burst, and discharged a quantity of acrid matter. The process of ulceration now going on rapidly, and spreading in all directions from these newly burst abscesses, soon had these cavities uniting with each other, and with the former ulcer, so as to lay the whole into one open sore. In the mean time, however, interstitial absorption had been going on, and separating the unhealthy, or rather dead substance, already alluded to, which constituted the elevated portions and foul appearance of the original ulcer, and thus rendered the surface pretty clean and plain. The former cicatrices being considerably below the original surface, the granulations soon became level with the new skin, when, cicatrization immediately commencing, a considerable portion of the old ulcer was healed over, before ulceration had brought the newly suppurated tubercles and the old ulcer to unite; and from this cause the extent of open sore was never very great at any particular time, and indeed much less than would be supposed to have been the case, by any one viewing the extent of cicatrices which now appear.

Such, the patient informs me, has been the regular course of the disease ever since its commencement; and it has followed, as nearly as possible, the same course, during the whole period of my attendance. The greatest extent of open surface I have ever seen at one time, was about an inch and a half square; but in general the length was greatest, and the breadth small; and sometimes the former ulcer would be almost closed entirely before the succeeding crop of tubercles burst, and accelerated the ulcerative process. The disease seemed to be confined entirely to the destruction of the subcutaneous cellular membrane; and when this was accomplished, cicatrization immediately followed.

Having premised a few smart purges, and having satisfied myself that the digestive functions, secretions and excretions, were all natural, I hoped to be able to accomplish a cure by external applications alone. As the parts seemed to be in an irritable state at the time, poultices and anodyne applications were first tried, but these were soon exchanged for various other applications, in the form of ointments and lotions, as the varying states of the sore seemed to require.

I conceive it would be quite superfluous to enter into a minute detail of all the remedies used, with the length of time each was continued, this being regulated by the effects produced on the disease, by each particular application. Suffice it, therefore, to observe, that the applications used in the form of ointments were—the citrine ointment; red oxide of mercury, rubbed up with simple ointment; calomel rubbed up with do.; muriate of mercury rubbed up with do.; the saturnine ointment; resinous ointment; althæa ointment; and simple ointment;—the proportions of stimulating ingredients varied as the peculiar circumstances of the case seemed to require. In the form of lotion—lime-water, acetate of lead, sulphate of zinc, sulphate of copper, muriate of mercury, nitrate of silver, and diluted alcohol—all varied in strength as circumstances seemed to require. As caustic applications—the sulphate of copper, and the nitrate of silver. In general, stimulating applications seemed to agree best with the sore; but *varying* the applications seemed also to be of considerable benefit, independent of their peculiar nature.

Under the use of the lunar caustic, with which the edges of the sore were touched, and also any foul parts on its surface, every third or fourth day, and keeping the whole covered in the mean time with an ointment of the red oxide of mercury, the ulcer closed over for a very short time early last spring; but still some of those tubercles referred to existed in the vicinity of the newly closed sore, which soon after burst, discharged their ill conditioned contents, and became centres from which the same ulcerative process, already described, again extended in all directions. I again attacked these sores with the caustic and ointment, under the use of which the ulcer had lately cicatrised; but the ulcer now continued to advance, in defiance of all my exertions to arrest its progress.

Quite baffled in all my attempts at accomplishing a cure by remedies applied directly to the sore, and observing that stimulants and caustics, whilst they improved the general aspect of the ulcer, at same time, by exciting the absorbents to more vigorous action, seemed to accelerate the contamination of the contiguous parts, and the production of the tubercles already alluded to; and fully satisfied that the disease was confined solely to the destruction of the subcutaneous cellular membrane, I resolved on destroying a portion of it beyond where there was any appearance of disease, in hopes that by thus, as it were, insulating the diseased portion, it might be prevented from contaminating the contiguous tissue by direct absorption, and that thus bounds might be set to the disease. I wished to do this by making a simple incision with a scalpel, through the subcutaneous cellular membrane, and then to sear the wound with lunar caustic, so as to produce suppuration, and thus prevent the edges of the newly divided parts from reuniting. The patient, however, would not submit to my proposal at all, until the ulceration had extended its ravages as high as the most prominent part of the cheek; and, lately, it had advanced, at one point, close upon the right ala of the nose. The patient now became more seriously affected with dread of the consequences than she had ever been, conceiving that, if the nose was once affected, it would be irremediable. She could not bring her mind to submit to the use of the knife, but agreed to allow the caustic to be as freely and repeatedly applied as, of itself, to accomplish this separation, from which I hoped to arrest the progress of the disease. By a few free applications of the caustic, this was accomplished; and the result was satisfactory in the highest degree; for the extension of the disease never reached farther than this line of separation; and so soon as all the subcutaneous cellular membrane thus enclosed was destroyed, which I assisted in expediting by applying the caustic directly to it, under the use of a weak ointment of the red oxide of mercury, the ulcer soon cicatrized, *leaving the surrounding parts entirely free from those tubercles already alluded to,* and apparently quite healthy. This never was the case at any former time when the ulcer closed; and I would fondly hope, as the patient still continues well, that she may thus have been relieved, for ever, from a most loathsome and intractable disease.

I do not remember to have ever met with any author who describes a disease answering to this in every point. Drs Willan and Bateman, under the name of *Noli me tangere*, certainly come very near it, when they said, that besides the *noli me tangere* affecting the nose and lips, they comprise "other slow tubercular affections, especially about the face, commonly ending in ragged ulcerations of the cheeks, forehead, eyelids and lips, and sometimes occurring in the other parts of the body, where they gradually destroy the skin and muscular parts to a considerable depth." The affection I have had under consideration was tubercular, and slow in its progress; but the destruction of "the skin and muscular parts by no means constituted any prominent part of its character. It is true, the skin was destroyed, but that was uniformly preceded by the destruction of the subjacent cellular membrane, and followed as a consequence. It frequently happened that portions of the skin became undermined by the removal of the cellular membrane, and so brittle, that in twisting it would break off; and as to the muscular substance, the disease never seemed to attack it at all, instead of destroying it "to a considerable depth," as the disease these writers describe seems to have done.

Sir Everard Home says, that the ulcers for which he has been led to employ arsenic, are named, from the virulence of their disposition, *noli me tangere*, and are very nearly allied to cancer; differing from it *in not contaminating the neighbouring parts by absorption, but only spreading by immediate contact.* (Home on Ulcers.) Now, the disease I have had under consideration, not only spread by immediate contact, but evidently also contaminated the neighbouring parts by absorption, in as far as new crops of tubercles were continually produced in the cellular substance, at some little distance from the ulcer, and between which and the tubercles, the skin and the cellular substance appeared unchanged in its physical properties. It, however, never evinced any tendency to affect the glands, nor was it ever attended with those lancinating pains which are so distressing in real cancer; and in these respects, it seemed to differ from real cancerous ulceration.

It may naturally be asked, why, amongst the numerous remedies tried, I never made trial of arsenic, when so much praised in affections so similar to this. In answer, I have to observe, that at first I wished to give a fair trial to milder and safer remedies, as the extent of open surface was such as might soon have produced serious effects on the constitution, by applying arseniacal preparations to it: and in the end, I became convinced, that cutting off all direct communication between the diseased and the healthy part of the tissue, to which the disease seemed to be confined, offered a more rational prospect of success than any application whatever made directly to the sore itself. The issue proved so successful, that I shall most certainly adopt the same method at once, should a similar case ever come under my care.

Having, shortly after the cure of this case, read Dr Duncan junior's interesting papers on diffuse inflammation of the cellular membrane, published in the Transactions of the Edinburgh Medico-Chirurgical Society, it occurred to me, that making an incision *beyond* the progress of the affection, and searing the wound with caustic, or the actual cautery, might be a very probable means of preventing the disease from spreading so far, and producing such extensive abscesses as happens in many cases. It would produce at once, what occurs in every true phlegmon, where a deposition of coagulable lymph takes place at some distance from the centre of the phlegmon, and forms a barrier to the further progress of any deposition or secretion from the vessels of the part running on to suppuration; and it would not only break down, mechanically, the connections of the neighbouring parts, and prevent such mischief as is produced in those diffuse inflammatory cases in which the inflammatory action, by being diffused over so great an extent, has a tendency to disqualify nature from operating with sufficient intensity at any particular part, to produce the healthy pus of a true phlegmonic abscess. Should the method proposed be adequate to arrest the progress of the affection, and circumscribe its bounds, its action might go on with greater vigour, and it might run its course sooner; and, besides, as experience seems to prove, that when it extends in certain directions, it is attended with greater danger than when it extends in others, which are even considered salutary, it is not improbable its *direction*, as well as extent, might in this way be in some measure brought under our control, and turned to advantage.

As circumstances seem to prove, that the production of serum, of coagulable lymph (or perhaps, more strictly speaking, fibrine), and of pus, depend entirely on different degrees of *intensity* of the inflammatory action, the latter being the highest, and the former the lowest. If this be really the correct theory, it is evident that we are able, in a great measure, to regulate the product by the means we adopt; and that it is very possible to convert the one into the other, according to the measures employed.

Leadhills, 1*st September*, 1824.

VII.

The History of a Case of Calculus in the Bladder, in which the Operation of Lithotomy was performed according to the Method adopted by Mr Aston Key of Guy's Hospital. By CHARLES AVERILL, Surgeon, Cheltenham, Fellow of the Royal College of Surgeons, and Member of the Medico-Chirurgical Society.

THOMAS BENNET, aged nine years, of Ripple, Worcestershire, had had symptoms of stone in the bladder ever since he was a year old. About the middle of April 1824, I by chance saw him, but having no sound with me, did not examine him. On the 17th of May he came to Cheltenham, when I sounded him, and felt a stone. On the 19th I sounded him again, in the presence of several other surgeons, who all felt the stone distinctly. It was then determined that the operation of lithotomy was the only means of giving him relief, and he was accordingly directed to live abstemiously, that is, to subsist on vegetable diet, and take mild aperient medicine. He had for some time discharged a considerable quantity of yellow matter with his urine, which always sunk and adhered to the bottom of the vessel. He, at times for the last two or three years, had been in the most excruciating agony, and always after being sounded. The medicine which he took for the fortnight prior to the operation, was at first small doses of castor oil, with mucilage of gum-arabic, and tincture of henbane; and afterwards small doses of emetic tartar, with Epsom salts.

On the 31st of May, at 12 o'clock, in the presence of most of the medical men of this place, I performed the operation, some thin gruel having been injected into the rectum, and returned about three hours previous, and the following draught given at 11 in the morning.

℞ *Tinct. opii gtt. xxv. Tinct. hyoscyami gtt. xxx. Mucil. acaciæ* ʒ*ii. Mist. camph.* ℥*i. M. ft. haust.*

The operation was performed in the following manner, Mr Key having very kindly lent me his case of instruments. The extremities being secured, a straight staff was passed into the bladder, when an incision was made in the usual direction, till the groove was exposed. The same knife was carried along the groove, in the manner directed by Mr K., and the prostate gland divided throughout its whole extent; then, directing my nail along the groove in the staff, I felt my way into the bladder, till the point of my finger came against the rough surface of the stone, when I withdrew the staff, and having used my finger as a conductor for the forceps, I withdrew it also. I then took hold of the stone, and endeavoured to extract it, but in vain. The division of the prostate had not left an opening of sufficient dimensions to allow the stone to pass, and the forceps slipped from the calculus. I was therefore under the necessity of enlarging the opening into the bladder. This I did, by passing into its cavity my left index finger, which I used as a director for Sir Astley Cooper's beaked knife. With this instrument I further dilated the cut, to the extent, as I thought, of about a quarter of an inch. On again introducing the forceps, I was some time before I could get hold of the calculus; but having once seized it, I drew it from the bladder. It was of the mulberry kind, and the largest I have known for a boy nine years old, weighing one ounce and a quarter avoirdupois. The operation lasted about seven minutes; but little blood was lost. The patient was put to bed, ordered to be kept quiet, and directed to drink freely of the following mixture.

℞ *Sodæ subcarbon.* ʒ*ii. Mucil. acaciæ* ℥*iii. Decoct. hordei* ℥*xxi. M.*

For some hours he dosed occasionally, and complained of a good deal of smarting in the wound; but in the evening, at 8 o'clock, he was free from pain and comfortable.

In the afternoon of the following day, slight symptoms of peritoneal inflammation came on, for which nine leeches were applied to the lower part of the abdomen, and a purgative medicine ordered. These means removed the bad symptoms, and he continued improving daily. A little urine passed occasionally by the urethra, but by far the greater quantity through the wound *in perinæo.* On the morning of the 8th of June, I was sent for to see him, and found him in great pain, in consequence of the wound in the bladder having closed, and allowed that viscus to become distended with urine, which he was unable to pass off by the urethra. He was put in a warm bath, but derived no benefit from it. A small catheter was, therefore, passed by the urethra. It entered the bladder readily, when about half a pint of urine passed off, which relieved him. The urine was drawn off again in the evening. On the 9th the bladder was again distended; the catheter was therefore introduced, and the urine drawn off. This day the urine passed again by the wound *in perinæo*, and continued to do so on the 10th. On the 11th the bladder was again distended, without the power of evacuating itself. A catheter was again introduced, when the urine passed away. In the evening the urine had collected again, when, on slight pressure being made above the pubes, the bladder contracted and emptied itself without further assistance. From this period there was no necessity for the catheter, the bladder acting without assistance, and the whole of the urine passing through the natural channel. On the 14th, or just a fortnight from the operation, he left his bed for an hour or two. The following morning he was dressed, and sat up greater part of the day. On the 17th the wound was completely healed, and he walked a little in the open air. On the 24th he left Cheltenham quite recovered, the discharge of matter with his urine having gradually diminished since the operation, and he having perfect controul over his bladder.

Dr Sherlock Willis of this place attended the case with me, throughout its progress.

The above will, I trust, serve as far as one case can, to make Mr Key's method of operating more generally adopted. In the hands of those acquainted with the relative situation of the parts about the neck of the bladder, this will be found the most simple and safe operation. The straight staff I consider to be the great improvement; indeed it is the principal novelty in the operation, as Messrs Lawrence, C. Bell, and S. Cooper, all occasionally cut into the bladder with the same knife with which they have opened the groove of the staff; but Mr Key, I believe, is the first who has substituted a straight for a crooked director. Of the two latter instruments, the advantage which the straight possesses over the curved must be made obvious to any one who will take the trouble, by removing the *os innominatum* and lower extremity, to make a side view of the contents of the pelvis, and then use the two instruments separately as directors for the knife in cutting through the prostate into the bladder. In this way the eye can follow the knife throughout its course, when the safety (as a conductor) of the straight over the curved staff is strikingly exemplified. If, as in the case just narrated, the complete division of the prostate with Mr Key's knife should not leave an opening sufficiently large to allow the stone to pass, I should prefer, as I did, using a beaked knife to dilate the wound in the bladder, since, from its form and blunt point, it would be more readily passed along the finger, and be less likely to do mischief; besides the operator can feel more distinctly the extent to which he is cutting, in drawing the knife towards himself, than he can when he cuts in a contrary direction.

Cheltenham, July, 1824.

VIII.

Case in which a New Method of Performing the Lateral Operation of Lithotomy was practised with success. By JAMES T. WILKINSON, Member of the Royal College of Surgeons in Ireland.

HAVING lately performed the lateral operation of lithotomy in a manner different from the common method, I take the liberty of submitting for your consideration, the case and the circumstances which led me to deviate from the usual mode of operating. The subject, a boy of eight years of age, had been afflicted four years with the disease, and, along with the usual distressing symptoms, had, at every effort to make water, a protrusion of the rectum to a considerable extent, which became much thickened and diseased. Upon the introduction of the staff into the bladder, the water came away, and with the effort the rectum protruded, and all the propelling muscles were put strongly into action. I felt the end of the staff which was in the bladder to be forcibly closed upon by its contraction, and was convinced that it would be altogether impossible to introduce any of the usual cutting instruments into the bladder without wounding its fundus. Thus circumstanced, it occurred to me that a probe-pointed bistoury might be introduced through the neck of the bladder, and the parts divided from within outwardly, the back of the knife in the mean time removing the folds of the bladder out of danger.

The external parts having been divided in the usual way as for the lateral operation, I cut into the groove of the staff through the membranous portion of the urethra, and having reached the neck of the bladder, I exchanged my scalpel for a curved-bistoury with a button point, fitting the groove of the staff. It had also a sharp point, which was moveable. Having passed this instrument along the groove of the staff into the bladder, I felt in the external wound for the button of the bistoury, and having fixed it in a situation which I deemed favourable, I pushed forward the moveable point through the bladder upon my finger, and then withdrew the knife in a direction corresponding with the external wound; a stone about the size of a walnut, and resembling it in external appearance, was extracted, and the patient became perfectly well, without any further inconvenience.

I have a second time performed the operation in a similar manner, and with the same success: I have also performed it upon the dead subject, and afterwards dissected the parts, and found, that the parts divided are those intended to be divided by the lateral operation, and that the usual accidents are altogether avoided.

Limerick, September 22d, 1824.

IX.

Case of Hæmorrhœa Petechialis, successfully treated by Purgatives. By John Darwall, M. D. Birmingham.

Thursday, April 22, 1824.—Mrs Sandbrooke, aged 49, schoolmistress. About a fortnight ago, she came to me with dyspeptic complaints, accompanied with wandering pains over the whole body (but particularly across the loins) resembling rheumatism. For this she was purged, and afterwards had infusion of rhubarb and chamomile three times a day. Her bowels, however, became costive; and from Sunday last till this day, she had no operation from the bowels. When she came to me this morning, I found extensive patches of purpura. The tongue was swelled, the gums tumid, livid, and bleeding; large ecchymoses over the whole inside of the cheek; petechiæ over the face, arms and legs, with here and there large patches of purple, as if proceeding from violent bruises. The pulse good, 80, very thirsty, in considerable pain about the mouth; the lips almost black, the urine natural.

℞ *Hydrarg. submur.* ℈*ss. Mass. pil. colocynth. comp.* ʒ*i. ft. pilulæ xii. Sumat iii. tertia quaque hora, donec alvus solvatur.* ℞ *Infusi rosæ* ℥*iss. 3tia quaque hora.* The infusion of roses not to be taken till the pills had operated.

Friday, April 23.—9 *a. m.*—The pills have operated three times in the night, and, by report, removed very much coagulated grumous blood, with a very offensive matter. There is no increase of petechiæ or purple spots since yesterday, nor do the gums bleed so freely. She is very weak and thirsty, but the pulse is not feeble nor quicker than 90. The urine natural.

Cont. infus. rosæ.

8 *p. m.*—In most respects as she was in the morning. There has been no external increase of disease, nor is her pulse more feeble. She still bleeds, and represents her urine to be more deep coloured than when in health. She has had one operation, very black and so offensive that it was not kept for inspection. She complains of a little pain in the bowels.

Rep. pilulæ iii statim, et nisi alvus prius solvatur, primo mane repetantur.

Saturday, April 24, 9 *a. m.*—The ecchymoses on the face are more extensive, and she bleeds profusely from the mouth. The soft palate is almost black. She is very feeble, and has fainted once or twice; pulse 104, weaker. She has had several stools in the night; one was seen, and seemed little else than coagulated blood; the others represented to have been the same. Urine still clear, and natural in appearance. She has now a bad cough. Ordered her to take some port wine and water.

℞ *Ammoniæ carbonat.* ʒ*iss. Spirit. ætheris nitrici* ℥*ss. Aquæ puræ.* ℥*viss. Solve. Sumat coch. iii. larga e coch. ii. larg. succi limonis 3tiâ quaque horâ.*

7 *p. m.*—The ecchymosis upon the face is darker and more extensive, and fresh spots have appeared upon the body. The bleeding from the mouth is very nearly the same, and she has had three copious evacuations from the bowels, consisting of nothing but coagulated blood. The last had been saved for inspection, and I was assured that the former were precisely similar. She has taken a very little broth during the day, and about three glasses of port wine mixed with water, but complained of the latter affecting her head. The pulse is 100, fuller and rather bounding. Urine still natural. Complains much of pain in the stomach and bowels.

℞ *Magnesiæ sulph.* ʒ*iss. Magnes. puræ* ʒ*ss. pro pulvere quartâ quaque horà sumendo. Omitte vinum et alia.*

Sunday, April 25, 9 *a. m.*—She has no pain now in the bowels, nor in her face, which troubled her much yesterday. Cough very bad, but brings up no blood. Has had three evacuations during the night, much the same as yesterday. Urine natural. Blood flows copiously from her mouth; the right side of the face much swelled and very livid. Many of the petechiæ on the left cheek have disappeared. No fresh spots on the body. Pulse 112, rather full.

Cont. pulveres.

8 *p. m.*—The petechiæ have disappeared more from the left cheek, but the right is more swelled and darker. The gums are black, and the tongue much swelled. Blood still flows from her mouth, but it is less coloured and fewer coagula form. The cough is better; she has only coughed once violently, and at that time she coughed up some blood. Her bowels have been open twice to-day. This first dejection was as the former, but the last is reported to have been redder and more fluid, scarcely any coagula forming in it; the urine quite clear. She complains a little of her head. No fresh petechiæ or ecchymoses have formed, and the former appear a shade lighter. Pulse 100, soft and full. She has only taken a little broth today; has taken five powders in all, since they were ordered. Continue them through the night, and to have cold wet clothes laid upon the forehead.

Monday, April 26, 8 *a. m.*—Has had two evacuations in the night containing somewhat more feculent matter. The face is very much swelled, and she has great difficulty in swallowing; and when she drinks, a part returns through her nose. The mouth is more livid, and the lividness and swelling extend down the anterior part of the neck. Urine natural, pulse 100, full and soft.

Cont. pulveres.

5 *p. m.*—Menstruation commenced about mid-day—the proper period, and is very profuse. Swallowing very bad, but feels more comfortable; very sleepy; no difference in the external appearance; cough much as when last reported; bowels open only once; dejection almost blood alone; pulse 100, rather hard and full; has taken only one powder since the morning from her difficulty in swallowing; the tongue is very much swollen; great thirst.

℞ *Infusi sennæ* ℥*viii. Magnes. sulph.* ℥*i. M.* Take it as a common drink.

Tuesday, 9 *a. m.*—The face and neck less swollen, and the gums are cleaner. She has passed less blood from her mouth, and thinks she can swallow better; the catamenia still very abundant. The bowels have been open twice, and there is more feculent matter in the dejection than has yet appeared. Sleeps very much; coughs less; has taken nothing but the medicine in the night, and very little of that. Pulse 108, rather full and firm; free from pain.

Cont. medicamenta.

6 p. m.—The bleeding has nearly ceased, and her general appearance is improved; swallows rather more easily; bowels have been moved three times; the last dejection was without blood, and consisted of very offensive fecal matter; pulse sharp, 120; cough rather more troublesome, and complains of its hurting her; catamenia abundant.

Wednesday, April 28, 9 *a. m.*—Her face very black, but less swelled; mouth cleaner; no bleeding from the gums; cough rather troublesome, and spits up a considerable quantity of offensive coagula with much mucous; swallowing appears better; bowels have not been moved in the night; pulse 120, rather stronger; took no medicine yesterday; took an ounce and a half of her mixture in my presence.

5 p. m.—Has had three evacuations since the morning, without any blood, but entirely feculent and very offensive; gums and mouth much cleaner, and the general expression of the countenance improved; ecchymoses stationary; cough less; catamenia on the decrease; has repeated the medicine, and taken a little chicken broth; the skin generally yellow; pulse 104, strong.

℞ *Hydrarg. submur. gr. iv. statim sumend. Cont. mistura.*

5 p. m.—Seems improving; has had one feculent evacuation since the morning; cough less troublesome; swallowing easier.

Cont. Mistura.

Saturday, May 1.—Improving; the gums are cleaner, and she is able to eat a little bread; spits profusely; her bowels have been open three times in the last twenty-four hours; the ecchymosis on her face is lighter, and in some parts the spots have nearly disappeared; cough slight; pulse 96, very strong; the catamenia have ceased.

From this time she contined to improve, and I have seen her within the last week. She is perfectly restored to health. She lay on the right side of her face, which appeared to have caused the greater ecchymosis of that side.

August 13*th*, 1824.

Long after I had ceased to attend this case, I discovered that a common quack, one of those pestilent fellows who prey upon the lives and purses of the poor, had been attending and giving his medicines some part of the time. I much suspect that the sudden change in the pulse, &c. on the 27th was owing to his interference, but I have not been able to learn the exact time of his attendance.

Birmingham, August 17*th*, 1824.

X.

A Case of Hydrocephalus cured by Mercury. By HENRY FISHER, M. D., Member of the Royal College of Surgeons in London, H. P. 6th (or Inniskilling) Dragoons, Navan, Ireland.

ANDREW CASEY, 7 years of age. For some days previous to an application for medical advice, this child was observed to be listless and languid, easily fatigued, with variable countenance, at one time much flushed, and again pallid and shrunk; occasional thirst, with a morbid aridity of the skin; his bowels irregular. He abandoned his usual pleasures and amusements, and lolled in general on the lap of his mother.

A physician having been called upon to see him, he prescribed some opening medicine, containing a portion of calomel, which, for a short time, seemed to have afforded him relief; however, his listlessness and inactivity, particularly towards evening, seemed rather to increase. He began to complain of a dull sensation of pain in the forehead, vertex and occiput, thirst, and other febrile symptoms, which, notwithstanding the judicious administration of remedies, gained upon him daily. At this period, the 7th day of his illness, I was called upon to visit him, in conjunction with Doctor Munkitterick. We found him complaining, *not* violently however, of his head, with rather a ferrety appearance of his eyes, his pulse 110, and firm, his tongue loaded with a yellowish white fur, particularly at its base, with a vivid redness of its point and sides; which latter also had a shining scaly appearance; the bowels extremely irregular; the evacuations at one time of a greenish cast, at another, of slimy, flaky mucus, but so unnatural as to satisfy us of the extensive derangement of those organs, the healthy state of whose secretions is so essential to proper alimentary concoction. The bowels having been repeatedly evacuated by medicine previous to my visit, we were resolved to attend to the head, as claiming our principal care, which, having been shaved, and perpetual cold applications made use of, twenty leeches were applied to the temples, with a perseverance in the purgative and antimonial diaphoretic system already in use, together with the administration of the submurias hydrargyri, in the proportion of two grains every third hour. Notwithstanding our having continued this evacuating and alterative course for three days, the pain scarcely ceased, or, if it did for a while, it was sure to return with increased violence. A blister was, on the 10th day, applied to the nape of the neck, with a repetition of the bleeding from the temples, to the same extent as before; all which remedies, as yet, seemed to afford no relief whatsoever. The tumefaction of the epigastric and hypochondriac regions, which had existed from the commencement of his illness, now rather increased, and much uneasiness was produced on pressure. We deemed it prudent to apply a dozen of leeches to that part of the right hypochondrium most pained by pressing upon it. At this period, the 12th day, he became comatose, with the eyelids half closed; the pupils, particularly the right one, nearly insensible to light, only occasionally exhibiting some very slight contractile power; an evident paralytic affection of the left arm, thigh and leg, and a difficulty of swallowing, from want of sensibility, so great, as to render it nearly impossible to get down his medicine. As our only hope, under these alarming and distressing circumstances, was the steady perseverance in, and full effect of, the alterative course, in addition to the *submurias hydrargyri*, we directed friction of the *unguentum hydrargyri*, to the extent of half a drachm night and morning, over the hypochondriac regions; and the first or inflammatory stage of the disorder having subsided, we deemed the application of a cap blister to the head, and sinapisms to the feet, advisable. In this comatose, stupid state, now much increased, he remained, with very little variation, till the 25th day, a period of 13 days, during which time the urine and feces were passed involuntarily, his pulse ranging from 60 to 66 strokes in a minute; his right hand (the left being in a state of paralysis) constantly on the side of his head, with every symptom of a brain compressed by serum. Notwithstanding those very alarming and dispiriting symptoms, we had not relaxed in our efforts, though apparently without a shadow of a hope of success, till the 13th day of the comatose state, and 25th of his illness; until which day, though we examined at every visit, we could not ascertain that the mercury had affected the mouth. However, we then discovered some slight mercurial ulcerations; the pulse was found to have risen 20 beats in a minute, and the pupils of the eyes, which were *almost* insensible to light, now began visibly to contract on the approach of a candle. His stools became tinged with a bile of a yellowish hue, and in a great degree to have lost their well marked hydrocephalic or spinachy appearance; the coma seemed by degrees to lessen. The alteration really appeared miraculous. From this period his recovery became incredibly rapid; the eyes resumed their sensibility to the rays of light, but the right one was observed to have acquired a degree of squint. The pain and uneasiness of the head had altogether ceased; the stools became consistent, and coloured with healthy bile. It is to be observed that he became greatly irritable, amounting to violence bordering on insanity, which continued for a few days, and gradually subsided; the squint also became less and less, and in the course of a month, was scarcely perceptible. Since his recovery from this attack, now nearly two years, he has enjoyed uninterrupted good health.

I considered myself fortunate in having in attendance with me a physician whose view of the case so entirely corresponded with my own, as the case required the most steady perseverance in the alterative plan, on which its success, though so long doubtful, absolutely depended.

Navan, County of Meath, Ireland,
16*th February*, 1824.

XI.

Staphyloma Scleroticæ successfully treated by repeatedly Tapping the Eye. By Richard Martland, M. D., Member of the Royal College of Surgeons, London, and Physician to the Blackburn General Dispensary.

Joseph Snape, æt. 38, weaver, was afflicted with severe pain in the head, whilst in his Majesty's service at Gibraltar in 1812, which, in two or three weeks, terminated in a quotidian intermittent that lasted for about two months. From this time he dates the commencement of a dimness of vision.

In April 1820, I was consulted, and found a cataract in both eyes. On the 21st of October, I cut up the lens of the right eye, and pushed a small portion through the pupil. The operation was repeated at the end of the third and seventh week with complete success; so that, in three or four months, the sight of this eye was quite as perfect as is usually the case after any operation for cataract.

On the 14th of December, at my request, an oculist from a neighbouring town extracted the lens of the left eye. After the incision in the cornea, there was some difficulty in extracting it, owing to a partial adhesion of the capsule to the iris, which was unfortunately lacerated; and some of the vitreous humour escaped after the removal of the lens. The capsule was opaque, the lens small, soft, and semi-opaque.

The patient could now distinguish objects, and we were flattered with hopes of a restoration to sight, but were disappointed in the result. Prolapsus of the iris, with violent inflammation, took place the first day after the operation, and continued for upwards of six weeks, leaving him quite blind of this eye, though very active measures were employed to subdue the inflammation; and the unreduced portion of the iris was destroyed by lunar caustic.

He again applied to me on the 30th of April 1822, complaining of pain darting through the left temple and forehead, and a sense of throbbing, as well as pain at the bottom of the orbit of the left eye. The conjunctiva was very vascular, and a large tumour was situated on the ball of the eye, opposite the external canthus, when the eye was directed as much as possible towards the nose. The surface of the tumour had a livid hue, and the adjacent vessels were larger and of a darker tint than any other part of the eye. It very nearly resembled that tumour of the sclerotic coat delineated in Travers's Synopsis of Diseases of the Eye, Pl. I. Fig. 7., but was rather broader at its base, and of a deeper colour. The iris lay very near the cornea, and had adhered to it where the incision was made. Just above this the pupil was about the size of a pin point; the circular fibres were so agglutinated together that they could not be distinguished; and the longitudinal fibres were in the upper part elongated, and remarkably distinct.

Since the operation was performed on this eye, he says, that, on the least exposure to any exciting cause, it has been very liable to attacks of inflammation, attended with pain in the left temple and forehead. Constitution is not affected.

> To use a collyrium of *liq. plumb. sub-ac. et vin. opii;* to take a cathartic occasionally; and, should the pain continue, to call on me again.

May 29th.—The pains of the eye and head have been considerably better till within the last three or four days, when they grew worse; and he applied a blister to the nape of his neck of his own accord. There is now considerable pain in the left temple, forehead, and bottom of the orbit; and the appearances of the eye are very nearly the same as mentioned in the last report.

Fiat paracentesis oculi. Contin. lot.

30th.—After discharging some of the vitreous humour yesterday, by tapping with a small cataract-needle, all the pain he before experienced was relieved in half an hour; but in the course of the night it grew worse, and continues so. There is now more extensive inflammation of the eye, and the tumour has also increased in size; colour the same.

Fiat V. S. ad ℥xx. Cont. lot. ℞ Pulv. antimon. gr. xvj. Opii pulv. hydr. submur. āā. gr. vj. M. et div. in chart. viij. quar. sum j. subinde urg. dolore.

June 3d.—Has derived benefit from the bleeding and powders, particularly from the last. The tumour is very much distended; and, in proportion to the distension it acquires more of the dull livid appearance. Has very great pain in his eyeball, temple, and forehead; still the constitution is little or not at all affected. Thinks the lotion causes a sense of heat after using it, and does more harm than good. He finds most relief from bathing the eye with warm water.

Omit. lotio. Adhib. aq. tepid. pro collyr. sæpe utend. Cont. pulv. Rep. oculi paracentesis.

5th.—Considerable increase of inflammation and pain; had temporary ease from the last operation.

To be confined to bed in a dark room till he is better.

Cont. aq. tepid. Cont. pulv. Nuchæ admoveantur cucurb. c. ferro cruent, et exsug. sanguinis ℥xvj.

6th.—The whole surface of the conjunctiva very vascular and swollen; tumour less, and colour more natural; still the pain continues in the head and bottom of the orbit, though it is not so severe.

Cont. pulv. et aq. tepid. Rep. paracentesis.

7th.—Inflammation and swelling of the conjunctiva much abated; headach still continues, but much diminished; the lateral tumour appears larger, and is more livid. There is now another smaller one observable near the upper part of the ball of the eye, and about 2½ lines from the edge of the cornea; the colour is livid, but rather less so than on the lateral tumour. Still there is no constitutional disturbance; says he was as usual much relieved by being tapped yesterday.

Nuch. ap. cucurb. c. ferro cruent. Cont. pulv. et aqua tepida.

8th.—Inflammation of eye and pain of head better; both *tubera* put on more of the leaden tinge, but are not much enlarged.

Cont. pulv. et aq. tepida.

11th.—Pain of the head less severe; no pain at the bottom of the orbit; the tubera have lost a little of their leaden hue; there is more vascularity between the lateral tumour and the edge of the cornea.

Omit pulv. Cont. aq. tepida.

13th.—The tubera on the lateral and superior regions of the eyeball are of the same livid blue cast as on the 8th; the conjunctiva is more vascular; very little pain of eyeball, but throbbing pains in the left temple and forehead. He says the warm water has lost its usual effect.

Omit. aq. tepid. Nuchæ app. cucurb. c. fer. cruent.

14th.—The lateral tumour is enlarged; upper one stationary; colour more livid; less general inflammation of the conjunctiva, but still much vascularity between the lateral tumour and the cornea; had his powders last night at his own request.

Cont. pulv. Adhib. aq. frigid. pro lotione, oculo, fronti et tempori, sæpe applic.

16th.—Superior tumour stationary: external one much enlarged, and several small white pustules appear on its surface; vascularity of conjunctiva nearly gone, except at the external angle.

Cont. pulv. et lotio.

17th.—Both tubera have increased in size, and put on more of the leaden hue; the lateral one is of fully as deep a dye as those delineated in Travers's Synopsis, Fig. 5. of Pl. IV.; the pustules are less distinct; pain in the temple and forehead very severe. On being asked if he will submit to have his eye removed, should it in a few days be thought necessary, he positively objects to it.

Cont. pulv. et lotio.

19th.—Eyeball not very painful; inflammation of conjunctiva but trifling, yet the tubera are very large, and exhibit the same leaden appearance. Yesterday he had 10 leeches applied to the left temple on account of the severity of the pain, with some relief, but to-day the pain is nearly as bad as before. Still he is determined not to have his eye removed.

Omit. pulv. et lotio.

22d.—Eye much inflamed, tumours very prominent: colour the same; has very much pain extending from the lateral tumour to the occiput; wishes to have his powders again.

Repet. pulv. Repet oculi paracentesis.

23d.—A considerable quantity of viscid transparent fluid escaped after the puncture yesterday, which gave immediate relief. Inflammation of conjunctiva very much better; the tumours have greatly subsided, and their colour is much more natural, very little pain of head.

Omit. pulv.

25th.—No pain or inflammation: has now resumed his weaving: tumours are filling again, and the livid tint returns in a trifling degree.

28th.—Pain of head very violent: the lateral tumour is much distended, and has again put on the leaden hue; the upper one is less so, and its colour is in proportion to its size. The vascularity of the conjunctiva is very great.

Repet. paracentesis.

29th.—Much viscid fluid was evacuated yesterday, with instant relief.

July 7th.—The usual bad symptoms having recurred to a great extent, he came about 12 last night to have the operation repeated, and it was attended with the wonted relief. To-day the tumours are very small, and not much discoloured, but the conjunctiva is much inflamed.

9th.—The lateral tumour much enlarged, the upper one stationary; both of the usual leaden colour; pain of the head very severe, extending from the angles of the orbit to the parietal bone. There is no pain, however, at the bottom of the orbit, nor is the conjunctiva as vascular as mentioned in the last report.

Rep. paracentesis.

22d.—The operation has been performed on the 13th, 17th, and to-day, with the usual good effect.

28th.—Both tumours much distended; leaden tint more distinct on one-half of the lateral tumour than on the other. Inflammation increased, with pain extending from the upper part of the orbit to the occiput. In other respects, he enjoys good health, and is able to follow his employment, after each operation.

Rep. paracentesis.

Aug. 1st.—Tumours less distended, and the leaden hue less distinct; still there is great vascularity of the conjunctiva, and the pain of the head is severe.

Rep. paracentesis.

5th.—The tumours having filled so much, and the pains of his eye and head being so severe that he could get no sleep, he came to have his eye tapped at two this morning, which gave instant relief to the pain of his head, and the deep-seated pain of his eye subsided in a short time, so that on his return home he slept well the remainder of the night, and was able to go to his employment this morning. The conjunctiva is still very vascular.

Rep. Lot. 30 *Apr.*

16th.—The eye was tapped on the 7th and 10th, and was much relieved each time. This day the tumours being again much enlarged, and the pain violent, I made a perpendicular incision through the coats of the eye, fully one-third of an inch in length, and about two lines and a half from the temporal edge of the cornea; and a great quantity of the vitreous humour soon escaped, which caused the eye to sink a good deal in the socket, and become very flabby.

20th.—The wound soon healed after the last operation, and the tumours having again filled, are attended with the usual pains.

Repet. paracentesis.

Sept. 19th.—The tumours have filled, and the pains returned, so as to require the tapping on August 23d, 26th, 29th, September 2d, 5th, 7th, 9th, 12th, 15th and 19th, when a pound of blood was taken from the temporal artery, on account of the greater severity of the pain in the head; and much relief was thereby obtained.

Oct. 12th.—Since the last report it has been necessary to perform the operation six times, viz. on September 22d, 26th and 30th, and on October 3d, 7th, and this day. The eye now appears natural in colour and size, so far as respects the tubera.

Feb. 23d, 1824.—On carefully examining the eye this day, no vestige of the tumours remains; the colour is quite natural; there is a cicatrix where the incision was made. He has had no return of the pain or inflammation since last report. The iris and pupil are nearly in the same state as described on the 30th April 1822.

Though some oculists object to tapping, I was induced to try it on this eye, from having frequently witnessed the great benefit resulting from puncturing the cornea (as recommended by Mr Wardrop) in certain species of ophthalmia, where an excess of the aqueous humour occasions over distention and opacity of the cornea. During the progress of this disease much relief was invariably derived from the operation, and this continued for a longer or shorter time, in proportion to the quantity of vitreous humour evacuated; the colour was also more or less deep, according to the degree of distention in the tumours. This colour seems clearly to be the effect of the choroid and its pigment shining through the sclerotic, previously rendered transparent in that part, by having undergone an interstitial absorption.

A medical friend, Mr Bailey, frequently visited the patient with me; and in June 1822, as we strongly suspected that the disease would prove of a malignant nature, we hinted to him the probable necessity there might be of having the eye extirpated, to which proposal he decidedly objected; and I believe no consideration would have induced him to submit to it. Soon afterwards, we began to entertain better hopes from tapping, as the disease did not grow worse, and the colour nearly disappeared after the evacuation of a considerable quantity of the vitreous humour. In August, however, not finding much improvement, an incision was made, with a view to evacuate the humours and sink the eye, but the extreme restlessness of the patient prevented a sufficiently large opening being made; and he afterwards refused to submit to any similar attempt. Though a very large quantity of vitreous humour was now quickly discharged, the wound soon healed, and the tumours were in four days so full, as to require another tapping. From this time the treatment was confined to it solely, with a gradual, but slow improvement, in the appearance of the tumours, until the 12th of October; since which, the eye has continued quite sound, after having been tapped in the whole 33 times; and though he was before quite blind of this eye, he now can distinguish a faint glimmer when a luminous object is placed before it. From the result of this case, I conceive that, if persevered in, tapping may be of material service in treating staphyloma corneæ, particularly if had recourse to in the incipient stage.

The very great inflammation, which ensued after extracting the lens, seems to be the probable cause of the morbid condition of the iris, the disorganization of the vitreous humour, and the interstitial absorption with consequent staphyloma of the sclerotic coat.

This case shows, that the dull leaden hue of a tumour on the ball of the eye does not always indicate a malignant disease: it also shows how little injury is done by tapping the ball of the eye a great number of times.

Blackburn, March 1, 1824.

XII.

Experiments to ascertain how far the Presence of Albumen and Muriatic Acid interfere with Action of Bichloride of Mercury and Protomuriate of Tin upon each other. By JOHN BOSTOCK, M. D. F. R. S.

In Dr Paris's work on Medical Jurisprudence, he is led to refer to the experiments that I made many years ago (and which are inserted in an early Number of your Journal), for the purpose of ascertaining, how far it is possible for a poison to be received into the stomach and prove fatal, and yet be so entirely evacuated from it, as that, upon examination after death, no trace of it may be discoverable. Dr Paris speaks of the experiments with that candour which characterizes every part of his valuable performance; but adds, that it is to be regretted that the stomach itself was not subjected to chemical examination.

A remark of the same tendency is made in your review of the "Medical Jurisprudence," which has induced me again to turn my attention to the subject. The curious fact that has been lately discovered by Dr Prout, of the presence of muriatic acid in the digestive organs, is of importance in this inquiry, as this substance may materially affect all the processes, where we are examining the chemical nature of the contents of the stomach.

Being so situated as not to be able to operate upon the stomachs of living animals, I performed some experiments, which may, at least, be regarded as having a reference to the question, and which appear to be so far conclusive as to show, that the first of the objections urged by Dr Paris and yourself is not without foundation. As a preliminary step in the inquiry, I began by ascertaining correctly, in the *first* place, the degree of delicacy with which the presence of bichloride of mercury may be detected by the protomuriate of tin; and, *secondly*, how far the presence of albumen interferes with the action of the salts of mercury and of tin upon each other.

A standard solution of *albumen ovi* in water was formed, containing 1 part of dry albumen to 100 of distilled water; and a solution of similar strength was formed of the bichloride of mercury. The protomuriate of tin was prepared by digesting the metal in strong colourless muriatic acid, the tin being added in greater quantity than the acid was capable of dissolving.

1. A portion of the solution of bichloride of mercury was diluted, until it contained $\frac{1}{500}$ of its weight of the salt; to 100 minims of this solution 1 drop of the protomuriate of tin was added, when the whole of the fluid was rendered of a deep blackish-grey colour.

2. For the purpose of comparison, a portion of the standard solution of albumen had $\frac{1}{500}$ of its weight of the bichloride of mercury added, and to 100 minims of this, one drop of the protomuriate of tin; the fluid was rendered of a deep grey colour, and a kind of imperfect coagulation took place; in 40 hours the colour was much deepened; and, upon the whole, the effect appeared more considerable than in No. 1.

3. The solution of the bichloride was then diluted until it contained only $\frac{1}{10000}$ of its weight of the salt; 100 minims of this had 1 drop of the protomuriate added; a decided grey tinge was produced; and in 24 hours a visible precipitate was thrown down; and even when an equal volume of water was added, so as to reduce the bichloride to $\frac{1}{20000}$, the grey colour was still perceptible, and the precipitate might be detected.

4. A comparative experiment was performed, in which the standard solution of albumen was employed, containing $\frac{1}{10000}$ of its weight of the bichloride; the effect of the protomuriate of tin was just perceptible, although less so than in No. 3; and when only $\frac{1}{20000}$ of its weight of the bichloride was added to the solution of albumen, the effect of the protomuriate could no longer be perceived.

5. The experiment was varied in the following manner; 100 minims of the standard solution of albumen was added successively to 100 minims of a solution of the bichloride of mercury, containing $\frac{1}{500}$, $\frac{1}{2500}$, and $\frac{1}{12500}$ of its weight of the salt, one drop of the protomuriate of tin being likewise added in each case; the result was, that the dark colour was distinctly visible in the second case; but in the last it was no longer to be perceived.

From these experiments it would appear, that $\frac{1}{20000}$ of a grain of the bichloride of mercury, dissolved in 100 grs. of water, may be detected by one drop of the protomuriate of tin; but that, if $\frac{1}{100}$ of a grain of albumen be previously added to the water, we can detect only about $\frac{1}{10000}$ of its weight of the bichloride.

The next point was, to ascertain how far the *bichloride* of mercury can be detected by the usual tests, when *it has been previously combined with albumen* in its coagulated state, as it may be supposed to exist in the substance of the stomach.

6. Thirty grains of firmly coagulated albumen had 1 drop of a saturated solution of the bichloride of mercury added to it; after 48 hours it was digested for some time in 4 drachms of hot water, and well triturated with it; the fluid was then passed through a filtre. To a portion of this fluid the protomuriate of tin was added, without producing any effect; while when the protomuriate was dropped upon the albumen itself, it immediately blackened it. From this experiment we learn, that when the *albumen, in a coagulated state, has been combined with the bichloride of mercury*, the bichloride may be detected by the protomuriate of tin, when applied to the albumen itself, but that the *bichloride cannot be separated from it by digestion in water.* Hence, we see the propriety of Dr Paris's remark, that the bichloride of mercury might possibly have been detected by examining the substance of the stomach itself, when it could not be discovered in its contents.

In the *third* place, I wished to examine how far the presence of muriatic acid in the stomach might be expected to affect the above results.

For this purpose, an experiment similar to No. 2 was performed, except that 2 drops of muriatic acid were added; a copious black precipitate was produced, which quickly subsided, leaving the fluid transparent; the difference between the results of Nos. 2 and 7 was, that, in the latter case, the precipitate appeared to be more dense, and to subside more rapidly. After standing 48 hours, the black colour of the precipitate was much diminished; the protomuriate of tin being then added to the fluid, blackened it; and the colour did not appear to be diminished after standing 24 hours.

8. An experiment similar to No. 6 was then performed, except that, together with the bichloride, three drops of muriatic acid were added to the coagulated albumen. In this case a very slight effect was perceptible in the filtered fluid, upon the addition of the protomuriate; while the albumen itself was blackened, as in the former case.

9. Two equal quantities were taken of the filtered fluid from No. 8, after the protomuriate of tin had been added to it; to one of them a minute portion of albumen was added, and afterwards to each of them one drop of a very dilute solution of the bichloride: they were both rendered black; but the one containing the albumen decidedly the most so. Hence it appears, that the presence of free muriatic acid does not prevent the detection of the bichloride of mercury when albumen is present, but appears even to render it more apparent, by promoting the coagulation of the albumen.

I think it unnecessary to give you an account of the other experiments which I performed, as the above appear sufficient to prove the point under consideration, so far as the action of the metallic salts on each other and on the albumen is concerned. We may, with some probability, infer from them what would be the case with respect to the stomach itself; and I should feel much gratified if any of your correspondents may be induced by these remarks to make the trial.

Before I conclude, I shall beg to give you an account of an occurrence which fell under my observation, and which, I conceive, very aptly illustrates the question now before us. A quantity of the white oxide of arsenic had been mixed with oatmeal, for the purpose of destroying rats, and a part of the meal was afterwards, by mistake, made into gruel. Some spoonfuls of the gruel were swallowed, when, in consequence of the peculiar flavour, the mistake was discovered. Medical assistance was had recourse to immediately; evacuants and diluents were copiously administered; notwithstanding which, the usual symptoms that follow the administration of arsenic took place, and even with some considerable violence. In about 36 hours they were nearly removed, and the patient complained of little else but great weakness and exhaustion, from which he appeared in two days more to have so far recovered, that medical attendance was thought to be no longer necessary. After an interval of five days, however, he was rather suddenly seized with pains in the region of the stomach, his strength rapidly declined, his pulse sunk, and he expired in a few hours. The stomach was examined, and was found contracted and somewhat hard; its colour was a bright red, with three or four patches, of about the size of a half crown, which were purple or crimson. The surface was carefully examined, to ascertain whether any arsenic could be found adhering to it, but without success; nor could any be detected in the fluid which was scraped from the surface.

This case may, I think, be fairly adduced as an instance of what I attempted to prove by my former experiments, as, from the nature of the poison, as well as from the length of time which elapsed between the reception of it into the stomach and the death of the patient, and from the state of the individual during this period, we may pretty confidently conclude, that none of the arsenic remained in the stomach. Although, therefore, I fully admit the imperfection of my experiments, I apprehend that the above case will confirm the inference that I drew, as it appears, too hastily from them. And, indeed, the opinion itself is one which, upon reflection, appears so reasonable, and to accord so well with our general notions of the laws of the animal economy, that I should be disposed to say that it scarcely requires to be substantiated by the aid of direct experiment.

London, 6th July 1824.

XIII.

On some of the Effects of Habitual Costiveness. By Dr Borthwick, F.R.S.E., and Fellow of the Royal College of Physicians.

Of all the threadbare subjects in medical writings, none have occupied a larger share of the attention of authors, than the various disorders of the stomach and bowels; and we must admit, that no class of diseases affords a more interesting field of inquiry to the practitioner, whether viewed in reference to the pressing danger sometimes attending them, or the very anomalous, and often deceitful appearances, which their most simple derangements give rise to.

In the following very brief notice, I wish to record one or two facts relative to the bad effects of habitual costiveness, and illustrative of the deceitful train of symptoms which may be observed. I have no doubt that very many such cases may have occurred to some of the readers of this Journal, and if so, they will the better understand the very interesting nature of the following cases.

In the autumn of 1822, I was consulted by an English lady, who had been in very delicate health for some years, and who had been sent to Madeira three years before, under the impression that she was consumptive. She had had severe pains in both sides, frequent cough, dyspnœa and emaciation, which symptoms were considered to indicate disease of the lungs, and for which she was repeatedly blistered and leeched, and every other remedy which is commonly adopted in the early stages of phthisis, was had recourse to. She spent a year at Madeira, and returned to England much improved in her health, and was held forth as a living instance of the good effect of *climate* in *curing* consumption.

This lady soon after married, and while on a visit to some friends in this country, she was attacked with a recurrence of those identical symptoms for which she had been sent to Madeira. Her friends were in great dismay, and the lady herself expressed much apprehension about her situation; and certainly her general delicate appearance as she lay on her sofa, with dry cough, short breathing, and flushed cheek, led me (*primâ facie*) to fear that there were some grounds for alarm.

After hearing her own statement of her case, I was agreeably surprised to find her pulse beating at 76 in a minute; and at the same time, I observed the adnata suffused with bile, the tongue loaded, bitter taste in the mouth, no appetite, the bowels confined for some days past, and *habitually* torpid; and on examining into the exact seat of the pain, so much and so anxiously complained of, I ascertained it to be seated on the one side, in the *caput cæcum coli*, and on the other in the sigmoid flexure of the same gut, while at times the pain was described as shooting up into the chest, being aggravated by cough, but always most severe in the parts already described. The practice here was obvious; and, on giving my opinion and directions, I perceived a kind of dissatisfaction and uncertainty about my patient, who candidly told me, that " leeches and a blister would have been more acceptable advice, and more consonant with her own notions about her complaints, as she recollected but too well that she was affected in the same way previous to her being sent off to Madeira." I requested, however, that she would devote three days to my prescriptions, by the end of which time I ventured to promise her that her fears would be in a great measure removed. During these three days, such copious (and to the patient, astonishing), evacuations of indurated feces were procured, that she in vain felt for the pain in her sides, which, with all the other deceitful symptoms under which she had laboured, entirely owed their existence to the vast accumulation in the parts already described. I need scarcely add, that, by regular and systematic attention, on this lady's part, to keep up a gentle but steady action of the bowels, all fears of consumption vanished, and she has since enjoyed good health.

Mrs G., æt. 24., from her infancy of an obstinately costive habit, was seized, about 10 *p. m.*, on 4th August 1823, with violent pain of the abdomen, accompanied by constant retching and tenesmus. She continued in this state during the night, and at 6 *a. m.* I was called to see her, at which time she was very low, after the exhaustion caused by so many hours of constant sickness.

The extreme distress of this lady, and the general alarm of her attendants, ill accorded with the time lost before assistance was sent for. I was, however, informed that this violent complaint was of frequent occurrence, and was generally considered "a cramp in her stomach," which went off in an hour or two; but that, on the present occasion, the "cramp" seemed more severe, and of longer continuance, than had ever before been experienced. It was also stated, that Mrs G. had taken various articles during the night, which in former attacks used to "settle the pain," but all of which had been rejected immediately. The patient was sitting up in bed, resting her elbows on her knees; her countenance pale, and peculiarly anxious; her skin bedewed with a cold clammy moisture; her tongue brown and parched, and her thirst urgent; her pulse was only 80, and low. My first care was to ascertain the exact seat of the pain complained of, and to satisfy myself that no species of hernia had taken place. On examining the abdomen, and tracing the course and arch of the colon, I discovered a hard, knotty, and irregular surface, as if one felt a parcel of walnuts contained in a bag. There was no doubt that this lady's sufferings must have continued more or less, until these lumps were got rid of, which were obviously scybalous masses impacted in the great arch of the colon.

As soon as the general irritability was somewhat assuaged by the warm bath, and applications of hot brandy to the epigastric region, a dose of castor oil was taken, which passed through the bowels, leaving all the mischief behind it, as did also a dose of Epsom salts taken the day before. I now ordered 15 grains of the compound extract of colocynth to be taken every third hour, and, in the intervals, a wine glassful of a solution of Epsom salt in peppermint water. Hot fomentations, sprinkled with laudanum, were kept constantly applied over the abdomen; and the urgent thirst was mitigated by sucking thin slices of lemon. After some hours, the cause of this lady's illness was set in motion; and during that night, and the whole of the following day, an incredible discharge of large hardened lumps took place; the arch of the colon was unloaded; pain and sickness ceased; and another warm bath at bed-time produced such a soothing night's rest, that this patient declared she felt better than she had done for some months past. She, of course, was desired to persevere for some time in the use of laxative medicines; and I am happy to say, she has never since had a return of the "*cramp in her stomach.*"

I commenced by saying, that I would detail two very simple cases, of every-day occurrence in our profession; but simple indeed as they may appear, I trust that, to the practical reader, they will be considered abundantly interesting.

83. *George's Street, November*, 1824.

XIV.

A Case of Fungoid Tumour of the Uterus, and of Extensive Tubercular Disease in the Abdominal Cavity. By WILLIAM HENCHMAN CROWFOOT, Surgeon, Beccles, Suffolk. [*]

IN the beginning of March 1815, I was consulted by Mrs B., a married lady, fifty-six years of age, and the mother of three children. Till within the last three years, she had enjoyed almost uninterrupted health; but since that time had been subject to profuse uterine hæmorrhages, recurring at uncertain periods, and unaccompanied by pain, and, in the intervals of the hæmorrhages, to considerable mucous discharges from the vagina. Her good constitution had prevented her feeling much debility from these losses; and her natural delicacy had made her unwilling to ask for medical aid till the stomach had begun to sympathize with the uterus, and dyspeptic symptoms had occasioned her much inconvenience.

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[*] In No. LXXXI. p. 306, *Henderson* is printed for *Henchman* in Mr Crowfoot's name; and *Sussex* for *Suffolk.*

At this time, the general aspect was good; the patient had not lost flesh, nor suffered in her spirits; she complained of flatulence, of a sense of distension in the bowels, and of uneasiness in the lower part of the body; but still she seemed to think lightly of her disease.

Some gently aperient and stomachic medicines were ordered; and the diet was directed to be mild, and easy of digestion.

In the beginning of April, no improvement had taken place in the symptoms; but, on the contrary, the pain in the body had increased, and had extended down the thighs, with an occasional sense of bearing down. There had been no hemorrhage for some weeks, but a continuance of the mucous discharge in considerable quantity.

Mrs B. now consented, for the first time, to an examination *per vaginam.* The *os uteri* was found to be slightly dilated, and harder than natural; a small but firm tumour was distinctly felt on the posterior side of the *cervix uteri,* from which it apparently arose; neither the tumour nor the *os uteri* was very sensible to the touch. The patient was advised to avoid every source of irritation; to use only the exercise of her carriage; to continue her bland diet; and to confine herself, as much as possible to a horizontal posture. Extracts of cicuta and of hyoscyamus were given to quiet the pain; the bowels were directed to be kept open by the occasional use of saline aperients; and four ounces of the decoction of sarsaparilla were ordered to be taken two or three times in the day.

In the beginning of May, the tumour on the *cervix uteri* had increased so considerably, as, from its pressure on the rectum, to interrupt the free discharge of the feces. Hemorrhoids, to which the patient had never before been subject, now made their appearance, and added to her sufferings. They were relieved by the repeated application of leeches. A tumour, hard, and of an irregular shape, was felt above the pubes.

By the 20th of May, the original tumour nearly filled the hollow of the sacrum, and prevented the passage of any but liquid feces, occasioning a frequent and distressing tenesmus.

By the 1st of June, the passage of the feces was almost entirely obstructed by the tumour, which appeared to fill the pelvis; the abdomen was greatly distended, and very painful, and the patient was very much reduced; but, on the whole, the constitutional irritation was less than might have been expected, and appeared rather to have been produced by the mechanical pressure, than by the peculiar malignity of the tumour.

The patient had hitherto taken pretty freely of nourishment, and the stomach had rejected nothing.

June the 3d.—Nothing had passed the bowels since the 1st instant, and it was found impossible to introduce a bougie, or to throw up an injection. The abdominal pain and tenderness were most distressing.

On the 4th of June, a spontaneous motion took place during sleep, and was followed by other copious fluid evacuations, without any apparent change in the size or situation of the tumour to account for the circumstance.

June the 7th.—The pain was become less distressing, but the body was greatly distended.

June the 9th.—The patient had continued to take and to retain her mild food till this morning, when she vomited for the first time. She was nearly free from pain, but was evidently sinking. She expired at 4 o'clock in the afternoon.

Examination of the Body thirty-eight hours after Death.

The abdomen was enormously distended, but not equally so; great and irregular hardness could be felt under its parietes. The peritoneum was inflamed, and very generally thickened. It contained a large quantity of serous fluid.

The omentum was much altered in structure, was of almost scirrhous hardness, and was adhering very generally to the parts it covered. When the omentum had been carefully removed, the subjacent viscera were found to be so united by adhesions, so altered in situation, and so changed in appearance, as to render it very difficult to trace them.

The uterine system occupied a large portion of the lower part of the abdominal cavity, and was covered with numerous hydatids, some of which were of a very large size. The ovaries seemed to be mere clusters of hydatids.

The uterus was perhaps about double its natural size. On its anterior surface there were three small tubercles, two of them of a spongy, and the other of a more solid character. To the posterior surface of the uterus, towards its cervix, was attached a tumour of immense size. Its surface was smooth, its covering being a very dense capsule. It had a pulpy and elastic feel, as if some fluid were contained in it. It descended behind the vagina, and so entirely filled the pelvis as to render its removal very difficult, without a division of the symphysis pubis; it also extended considerably above the brim of the pelvis, and involved a portion of the sigmoid flexure of the colon.

On cutting through the capsule of the tumour, it was found to contain a very vascular fungus, which penetrated the posterior surface of the uterus, and, having no capsular covering within the cavity of that organ, had probably given rise to the sudden and profuse hemorrhages to which the patient had been subject. Two of the smaller tubercles on the anterior surface of the uterus were of the same nature with the large one—the other was more solid. They all seemed to penetrate the substance of the uterus.

The convolutions of the intestines were generally adhering together, and formed a confused mass, to which were appended numerous large hydatids.

The colon and rectum were beginning to sphacelate from the effects of pressure.

Two large hydatids were attached to the liver, the concave surface of which viscus was thickly studded with *tubera.*

I do not remember ever to have opened a body in which I found so many and such various parasitical productions, hydatids of all sizes, tubercles small and large, spongy and solid, but each retaining its peculiar and specific character; the capsule of the spongy tubercle, however small, secreting, or at least inclosing, a spongy product; the capsule of the solid tubercle a solid; that of the hydatid, however large, a fluid; but I do not recollect to have observed any thing like a conversion of one species of morbid growth into that of another.

These parasitical productions are for the most part capsular in their mode of growth; and as the cyst is probably the part first evolved, may not the different species have been thus confounded in their commencement, and all have been supposed to have had a hydatid origin, when they were really from the first specifically different?

Since my last communication, I have had the satisfaction of again witnessing the good effects of depletion in preventing the formidable hemorrhage which occasionally follows the expulsion of the placenta. My patient had suffered severely from this cause in her three previous labours; but having been bled, and kept on a strictly antiphlogistic plan for six weeks prior to her confinement, she escaped with little more loss than usually takes place.

1824.

XV.

Case of Hydrophobia. By Dr BRANDRETH.

IN detailing the following case of hydrophobia, I am aware that it is only adding one more melancholy instance of failure in the cure of a disease which has hitherto baffled all the efforts of medical science, and that it presents little to add to the hopes of future success. The length of time which elapsed from the bite, and the rapidly fatal termination, in some measure add to its interest. I saw the case immediately upon the arrival of the patient at our hospital, and did not quit him till he died. The examination of the body was performed by Mr Churton the house apothecary, and the report of it drawn up by Mr Bickersteth. A great number of the medical practitioners of the town saw the patient, and several attended the dissection.

John Threlfall, æt. 18, was the son of a farmer at Walton, three miles from Liverpool, and appeared to possess a strong and healthy constitution. In the end of November last year, he was bitten in the finger by a dog which was known to be affected with rabies. Another man also bitten by him on the same day, died of hydrophobia early in the spring; and many animals were bitten at the same time, most of which died. The dog was secured, and died with all the symptoms of rabies. The wound of John Threlfall was in the fore-finger. He took the Ormskirk medicine, and his hand was kept bathed with it; but four or five days after, he consulted Mr Hanning, a surgeon at Walton, who applied lunar caustic, and in a few days it healed. He was apprehensive of hydrophobia, and took any, and all medicines that were recommended to him.

On Wednesday the 13th October, he fell unwell, and could not eat, but made little complaint to his friends. On Thursday morning he complained he could not drink at his breakfast, and would go to Liverpool for some medicine. He walked there, and returned at two o'clock; refused his dinner, and in the evening ate some bread soaked in water. The aversion to liquids, and dread of any body moving near him, now became apparent, and he was quite aware of the nature of his disorder. He passed a dreadful night, clinging to the neck of his mother, and driving every body else from him.

On the morning of Friday, Mr Hanning saw him, and took ℥xvi of blood from his arm, and then sent him to the Infirmary, where he arrived at half past one o'clock.

He was suffering under violent and incessant spasms of the diaphragm and stomach; continued but ineffectual attempts to vomit; occasionally spitting out, with extreme agitation, a little frothy saliva. He endeavoured to strike every one that came near him; but requested his father and brother to hold his hand that he might not injure them. In a short time he became quieted, but expressed great anxiety at any person passing or moving near him. His pulse at the wrist was quite imperceptible, but the action of the heart very violent, and so rapid as not to be counted; the lower jaw was fixed upon the breast, and the expression of the countenance was indescribably horrid. It was the opinion of every one present, that a very short time must terminate his sufferings. It was agreed, however, to inject the acetate of morphia, as recommended by Dr Booth; and the detail of the case will show the effects produced by it.

At 2 o'clock, 24 minims were injected with a little warm water into the orifice which had been made when he was bled in the morning. This was accomplished with much difficulty, as he became again very violent, and it was necessary to restrain him by absolute force. In a few minutes he was more composed, and told his father he should live a little longer. His pulse became distinct, 140, and the action of the heart had considerably diminished.

At 20 *and* 50 *m. past* 2, the same injection was repeated, which he allowed to be done without opposition; the pulse was now 120, and tolerably firm. Some brandy and water was injected into his mouth with a syringe, but he threw it out with great force. He continued frequently spitting, but endeavoured not to hit any body with it. He now showed his tongue without difficulty, which was excessively dry, and a little furred, and he spoke and answered some questions that were put to him.

At 15 *m. past* 3, two moxas were applied over the stomach; he remained perfectly quiet during the time they were burning, and said he felt relieved.

45 *m. past* 3, 30 drops were injected. He now ate some bread and butter without difficulty, and attempted to drink some ale, when the convulsions were renewed as soon as the glass was in his hand; but in a few minutes he took a spoonful with great exertion. The pulse was 140, and distinct; his countenance seemed much improved; he conversed with apparent ease. Pouring water into a basin produced no uneasiness; and when

some was splashed on the floor, he merely raised himself to look at it. He complained that his throat was dry, and he had nothing to spit out.

20 m. past 4.—Rational and composed; pulse 150, and very weak.

40 m. past 4.—Two more moxas were applied, which appeared to give relief; the action of the heart was moderate, pulse 120; he talked a good deal in a collected manner, and was not at all affected by persons sitting on the bed, or walking about the room.

30 m. past 5.—Injected a pint of warm water into the vein; the pulse was 90, distinct, and the action of the heart natural.

30 m. past 6.—30 minims of acetate were injected: soon after the pulse was 100; the tongue moist and clean; he showed it without difficulty; but had occasionally slight startings. At this time he appeared so much relieved, that some of the gentlemen began to entertain hopes of a favourable result. He continued in this state for an hour, when the pulse became gradually feeble and slow; and when he endeavoured to put his tongue out, it was twisted round in such a manner as to show the under surface.

8 *o'clock.*—The pulse was imperceptible, and he was bedewed with clammy perspiration. Another injection of ℥viii. of warm water was had recourse to. There was a considerable quantity of air distinctly felt in the cellular substance about the chest; he made frequent violent attempts to vomit; the teeth were firmly fixed together; and at half past eight the countenance became of a leaden hue, and he died in a strong convulsion. The body was examined at 7 o'clock of the following morning, 10 hours after death.

The vessels of the dura mater were gorged with blood; the longitudinal sinus was full of dark blood, mixed with globules of air; the ventricles contained half an ounce of fluid; the brain was very firm, and studded with numerous red points; the choroid plexus unusually turgid; the cerebellum was remarkably vascular, and part of the cineritious substance in a pulpy state. The blood was coagulated in the lateral sinuses, but not in the longitudinal. On lowering the head, a considerable quantity of fluid escaped from the spinal column. * On opening the integuments of the throat, the cellular membrane was found distended with air, which was ascertained, by inflating the lungs, not to proceed from them. The small intestines were quite blown up with air, and exhibited marks of incipient inflammation on their entire surface. The omentum and colon were quite out of sight, and the latter so knotted and small, as in many places to be incapable of admitting the little finger. The upper and outer surface of the stomach was healthy; but upon lifting it up, a large perforation was discovered, capable of admitting the closed hand, from which a clear-coloured fluid had escaped into the abdomen. The pericardium contained ℥ss. of fluid, and was highly vascular. The right auricle and ventricle were distended with coagula, and the left entirely empty. The cellular and adipose membrane surrounding the aorta contained air. The lungs, liver, diaphragm, kidneys and bladder, were perfectly healthy. The whole pharynx and trachea were highly inflamed, and the back of the throat was covered with bloody and frothy mucus. The lower part of the œsophagus was deprived of its mucous membrane. The stomach, in general, exhibited considerable marks of disease, and there were many extensive spots of extravasated blood between the coats.

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* Similar appearances have been observed in other dissections. The dissection was done without the consent of the friends. Owing to this, I regret I was not able to examine the spinal column.

I have this day had an opportunity of examining the stomach of a dog which died rabid, after having severely bitten three persons; and the similarity of its appearance to that of Threlfall, was evident to several gentlemen who were present at both dissections. Whether the injection of the acetate of morphia would have any beneficial effect on this horrid disease, must be left to future inquiries; but I am confident in this case, that it mitigated the sufferings of the patient in a most decisive manner; and if this occurs in other instances, it will be considered by every medical practitioner as an important acquisition; for perhaps no disease which comes under our treatment is so appalling, in the immediate sufferings it causes, as well as in the fatal result so uniformly found to follow it. In the case related by Dupuytren, much relief was experienced by the injection of opium; and I agree with Dr Booth in thinking, that the acetate of morphia does merit a decided preference. It is not improbable that the injection contributed to produce the highly vascular state of the intestines, stomach, trachea, and the contents of the head; and that it did so, may be inferred from Magendie having found the same circumstance take place in healthy dogs, into whose circulation opium had been injected. I should think that a larger quantity was used than would be necessary or expedient, if the disease had been less rapid, or had been seen at an earlier period. It was suggested, that the air found in the cellular membrane might have been introduced by the bladder and syringe that were used in throwing up the injection; but I am confident that could not be the case, from the quantity there was, as well as from the great care taken that both the bladder and syringes were entirely full of fluid, and free from air before they were used. It has been remarked in many patients who have died of hydrophobia, that the blood was unusually fluid and light-coloured. In this instance, I should undoubtedly say that the reverse took place; and I should be inclined to attribute the difference to the effect of the morphia. I am afraid to indulge in any theories or speculations on this subject; but I think it not impossible that, under more favourable circumstances, the injection of the acetate of morphia may do more than any remedy hitherto tried.

Liverpool, October 17*th*, 1824.

PART II.

CRITICAL ANALYSIS.

I.

1. *Anatomie und Bildungs-geschichte des Gehirns im Foetus des Menschen, nebst einer vergleichenden Darstellung des Hirnbaues in den Thieren.* Von Dr Friedrich Tiedemann, Professor der Anatomie und Zoologie an der Universitat zu Landshut, der Akademie der Wissenschaften zu München und zu Berlin, des Französischen Instituts so wie mehrerer anderen gelehrten Gesellschaften Mitglied. Mit sieben Tafeln Abbildungen. Nürnberg, 1816. 4to. pp. 172.
2. *Anatomie du Cerveau, contenant l'Histoire de son Developpement dans le Fœtus, avec une Exposition comparative de sa Structure dans les Animaux : par Frederic Tiedemann, Professeur à l'Université de Heidelberg, Membre des Academies des Sciences de Munich et de Berlin, &c. Traduite de l'Allemand, avec un Discours Preliminaire sur l'Etude de la Physiologie en général, et sur celle de l'Action du Cerveau en particulier.* Par A. J. L. Jourdan, Docteur en Medécine, &c. Avec 14 Planches. Paris. Chez J. B. Bailliere, Libraire, Rue de l'Ecole de Medecine, No. 14. 1823.

WE acknowledge that we ought to have given an earlier attention to this work, which was first published in the original in 1816. Various circumstances, however, have contributed to prevent us from bestowing on it that full and minute regard, to which the great merit of its contents undoubtedly gives it a just title; and we had almost forgotten it amidst the numerous works which are daily and hourly soliciting notice, when the appearance of the translation of M. Jourdan again roused our slumbering recollection. Without indulging, therefore, in any further delay, lest we should be tempted to postpone it till a period too late for useful purposes, we hasten, as soon as our limits admit, to give an account of the interesting researches of Professor Tiedemann.

The present work fills up an immense chasm, which has long deformed the history of human anatomy. Of the structure of the brain, we knew little but what was the result of desultory examination, conducted without definite object, and without rational method, or of wild conjecture, which set all dissection and sober observation equally at defiance. At one time we were amused with discordant accounts of parts, of which some utterly denied the existence, while others as resolutely maintained it; at another time, we were perplexed with accounts of separate or distinct organs, which no observer, who trusted merely to his senses, could discover; and at a third, we found the structure of the brain rendered subservient to sundry unfounded speculations on its uses. But if our knowledge of the minute structure of this organ was scanty or erroneous, we could, with no shadow of reason, make the same complaint regarding our knowledge of its mode of formation or development; for of this we were entirely and absolutely ignorant. It is impossible to except from this general character the few scattered facts found in the writings of Harvey, Willis, Malpighi, and Ruysch, or the bold and baseless speculations which issued from the fanciful school of Gall. The first were too few to lead to general results; the second were too fictitious, and in many instances too absurd to be believed by the most credulous physiologist not sworn to the mystical sect. To the elaborate researches of Tiedemann, therefore, the physiologist may with confidence turn, for a correct history of the development of this curious and little known organ, and for an explanation of many circumstances, hitherto perplexing, in the peculiarities of structure for which it is distinguished.

The work of Professor Tiedemann consists of two great divisions,—an arranged collection of facts, and a series of conclusions and illustrations. In the former, he describes successively the state of the brain during each of the nine months of uterine life, from the fourth week after conception, when the central mass of the nervous system is a transparent fluid, to the beginning of the third month, when it is firmer, but membranous, and still destitute of solidity, and successively, to the ninth month, when it is a solid organ, fully formed in all its essential parts. We proceed to submit a statement of the first part of the work, very nearly in the order observed by the author.

It is a considerable time since it was ascertained that the human embryo, when it begins to be distinguished, about the end of the fourth week after impregnation, is an oblong mass, slightly bent on itself, gelatinous, soft, and semitransparent, and attached, by very delicate umbilical vessels, to the inner surface of the ovum. If embryos recently removed from an ovum also recent, be examined at this period, either by the eye, or with the aid of suitable magnifying glasses, no organ can yet be recognised. The mass which corresponds to the head is quite transparent, and appears to contain a limpid fluid, which has not the smallest relation with the cerebral or nervous substance of the adult. The embryos of mammiferous animals present the same appearance at a corresponding period. Regnier de Graaf found the head of an embryo rabbit, fourteen days after copulation, bulky, but transparent; and Haller found it entirely pellucid. It is the same with the cephalic part of the embryo in birds, at the end of the second day, as may be seen in the researches of Harvey, Malpighi, Haller, Wolff, &c. It may therefore be regarded as established, that the brain and spinal chord exist in the commencement of life, only in the form of a limpid fluid. (8.)

In the fifth and sixth week after conception, the embryo is about four or five lines long; the head is bulky, and inclines forward. It is generally possible to distinguish a chink, representing the mouth, and two minute eyes without eyelids. Small tubercles point out the development of the thoracic and pelvic extremities; and the breech makes a considerable prominence. Above the insertion of the umbilical vessels in the abdomen, the canal of the heart filled with blood may be perceived. Embryos of this age have been represented by Ruysch, Albinus, and Soemmering. Examined a short time after removal from the ovum, the head and trunk are almost transparent. Of three embryos, Tiedemann opened cautiously the integuments of the head and trunk of one with a sharp needle, and found, immediately below, a canal or tube, which, in the head, was distended so as to form a rounded pouch, the walls of which were very tough, and the canal contained a whitish and almost diaphanous fluid. In the two others, the sac or pouch presented slight depressions, transverse and longitudinal, which gave it the air of being composed of several small vesicles agglomerated together.

The brain of the mammiferous animals, in general, is vesicular in its commencement. Harvey established this fact in embryos of the deer; and it is easy to be convinced of its accuracy in those of the rabbit.

The brain and spinal chord is disposed in exactly the same manner in the embryos of birds. In the chick *in ovo*, on the third day, when the canal of the heart and its vesicular dilatations are formed, vesicles may be recognised in the head. The forehead consists of two sacs, filled with limpid transparent fluid; the hind-head of one only. About the end of the third, and beginning of the fourth day, between the two anterior and the single posterior vesicle, a third appears, and soon divides longitudinally into other two. These prominent bodies, which were termed *cerebral vesicles*, by Coiter, Harvey, Stade, Langley, Steno, Malpighi, and Haller, correspond to subsequent divisions of the adult organ. The two anterior vesicles represent the two hemispheres; the two middle vesicles show the site of the optic chambers; and the posterior afterwards becomes the cerebellum. All observers who have studied the formation of the chick *in egg*, agree in describing the fluid contained in the cerebral vesicles as limpid, transparent, and watery, yet as giving origin to the brain. The spinal chord enclosed in the vertebral column, is represented by a long canal, which communicates with the cerebral vesicles, and contains a similar fluid. Tiedemann further observes, that the cerebral vesicles consist in truth of a single large sac, and are thus formed by the soft or vascular membrane, that is, the *pia mater*, penetrating in certain points, and thus marking the limits of the principal parts of which the brain is ultimately to consist. That the walls of the cerebral vesicles, and of the canal of the spinal chord, are formed by this membrane *(pia mater)*, is proved by the fact, that the first traces of blood, and the first vessels, apappear in their substance, as Malpighi and Haller, among others, have shown. (10.)

In embryos of the seventh and eighth week, like those which have been represented by Ruysch, Albinus, and Soemmering, the entire length of the body is from six to eight lines. Besides eyes and mouth, nasal and auricular openings may be recognised; the limbs become larger, are terminated by a flattened part, the round edge of which subsequently gives rise to fingers and toes; but the head and trunk are no longer transparent. In several embryos, on opening the spine and head, Tiedemann observed first a whitish membrane adhering to the inner surface of the scull,—evidently the *dura mater;* beneath a very thin membrane, in the tissue of which a suitable magnifying-glass showed very delicate blood-vessels; and within this, which it was impossible to mistake for the *pia mater*, he found a white pulpy substance, of the consistence of white of egg, which was evidently the rudiment of brain and spinal marrow. To unfold the structure of this substance, if such a semifluid can be said to possess structure, Tiedemann plunged several embryos in alcohol, and obtained the following results.

In an embryo seven lines long, obtained from the person of a woman believed to be about seven weeks pregnant, Tiedemann could distinguish perfectly the form and disposition of the brain and spinal chord. Having opened, by longitudinal incision, the spinal and cranial cavities, he first found the hard membrane *(dura mater)*, enveloping the brain and spinal chord, and dividing the cranial cavity into two equal parts, the limits of which were the horizontal portion *(tentorium.)* Beneath he found the soft or vascular membrane *(meninx tenuis, pia mater)*, adhering most intimately to the substance of the two organs, from which it was difficult to detach it without destroying the enclosed pulp. The spinal chord, bent like the column, was very large, and thick, in comparison of the size of the embryo, and of that of the brain particularly; of the same thickness in its whole extent, half a line broad, and marked on its posterior surface by a longitudinal groove, into which the soft membrane (*pia mater*) penetrated. The margins of this groove were very thin; and, by separating them by a flat needle, and turning them aside, the inner canal, continuous above with the fourth ventricle, and extending below to the end of the chord, was brought into view. As it is uniformly found in the chord of the embryo, Tiedemann terms it *the canal of the spinal chord.* The anterior surface consists of two strings or cords separated by a slight longitudinal furrow; but no trace of fibrous structure could be recognised in them, even with the aid of a powerful lens. At the upper end, where it unites with the brain, the chord, after bending forward, formed on each side a considerable projection corresponding to the tubercle at the nape of the fœtus, and was about a line broad. Before this projection or enlargement, the canal was dilated where it was continuous with the fourth ventricle. On each side the chord gave off a thin narrow plate, which inclined inward, and was applied to that of the opposite side, but did not unite with it. These two cords constituted the cerebellum, and formed a sort of bridge, one line and two-thirds broad, over the fourth ventricle. Tiedemann ascertained, by repeated examination in various embryal brains, that these cerebellic plates are not united on the median line. After sending off these plates, the chord rose somewhat, produced the stalks or peduncles of the brain, and terminated by bending backwards and downwards, forming a curvature in which the rudiment of the *tentorium*, or horizontal membrane, is placed.

Before the cerebellum, two other membraniform productions, equally bent inward, and mutually separated by a longitudinal chink, indicated the bodies which were subsequently to form the four eminences (*corpora quadrigemina*). Taken together, they were about one line broad, and as much long. By separating them, and the two cerebellic plates, Tiedemann perceived that the fourth ventricle extended into the space between them, and thus formed the aqueduct of Sylvius, which is very large at this period. At the bottom of the aqueduct he saw distinctly the two cerebral peduncles, forming two lengthened cords, from the summit of which rose the membranous and inverted figures corresponding to the four eminences.

Anterior to this were seen two round eminences two-thirds of a line long, mutually separated above by the Sylvian aqueduct, but joined below. These eminences, which were supported or formed by the cerebral peduncles, were certainly the optic chambers (*thalami optici*), and the space between them corresponded to the third or middle ventricle. Anterior to these, but applied to them, two other eminences a line long, and apparently the round ends of the anterior part of the cerebral peduncles, indicated with certainty the striated bodies (*corpora striata*). And, finally, from these two a membranous production extended inwards and backwards, to form the commencement of the hemispheres. (13.)

Tiedemann could find no traces of the annular protuberance, of the commissures, of the Middle Band or mesolobe (*corpus callosum*), nor of the Vault (*fornix*) and its appendages. The only parts, then, of which the rudiment or elementary outline can be traced at the conclusion of the second month, are two cords for the spinal marrow, two thin plates for the cerebellic hemispheres, two membranous productions for the four eminences, two round bodies for the optic chambers, two others for the striated bodies, and, issuing from these, two membranous productions for the cerebral hemispheres. Of all these parts, Tiedemann regards the basis as the spinal chord and its two anterior prolongations,—the peduncles of the brain, by which all of them are united before and behind, above and below. The canal which is formed on the posterior part of the spinal chord, and continued along the upper surface of the brain, evidently depends on the imperfect formation of the parts. Tiedemann regards the fourth ventricle, the aqueduct of Sylvius, and the third ventricle, as mere dilatations of the upper and anterior part of this canal. It would be perhaps more natural, and not less accurate, to say that they were spaces formed by the relative position of the surrounding parts, and which gradually diminished in comparative size, and changed their relative shape, according to the progressive growth of the parts by which they were formed.

Tiedemann saw no nerve issuing either from the spinal chord, or from the brain; but does not say that they do not exist,—because, at this early period of fetal life, their minute size might prevent them from being distinguished. The substance of the brain and chord, examined with a suitable magnifier, appears to possess no fibrous structure, but to consist of extremely minute globules. (14.)

The progress of the fetal brain during the third month of uterine life, is shown by an examination of two embryos of nine and of eleven weeks. In the former, which was about eleven lines and a third long (a little more than one inch), the head formed about one third of the whole mass, the eyes were large, but without eyelids, the ear-holes were surrounded by a little cutaneous elevation, the nostrils were directed forward, and the fingers and toes appeared like so many tubercles. It had been previously immersed for some time in spirit of wine, to harden the brain and spinal chord sufficiently to admit of examination. Besides the longitudinal fissure or canal, which enlarged at its upper end to form the fourth ventricle, it was possible to distinguish, arising from each cord, a plate bending forward to meet that of the opposite side, and thus form the restiform bodies, and their junction with the cerebellum. This last part was very narrow and thin, ribboned, convex without and concave within. The four tubercles (*tub. quadrigemina*) were seen in the form of two oblong oval eminences, convex and smooth above, separated by a longitudinal furrow, formed by two plates which issue from the peduncles of the brain, and mutually incline. The cavity below these eminences was an anterior continuation of the fourth ventricle, viz. the aqueduct of Sylvius, of great size, and a true ventricle. The next in succession are the optic chambers, two other protuberances, convex and smooth above, without cavity, but forming between them the third ventricle. Lastly, Tiedemann found, anterior to these, two other distended bodies (the striated) from which the cerebral substance in the form of a thin membrane, bent backwards and inwards, to form the rudiment of the hemispheres. The dimensions of the individual parts may be stated in the following order;—the spinal chord before the fourth ventricle, $1\frac{1}{3}$ line broad; the transverse diameter of the cerebellum 3 lines; the mass of the four eminences 2 lines long and $1\frac{3}{4}$ broad; the optic chambers $1\frac{1}{2}$ line long and $1\frac{3}{4}$ line broad; the striated bodies, with the membranous hemispheres, 3 lines broad. The annular protuberance, the mesolobe, the vault, the horns of Ammon, the commissures, &c. could not yet be recognised. (16.)

In the embryo of eleven weeks, which was 16 lines long, the forehead was slightly prominent, the eyes almost covered by eyelids, the profile of the nose made a slight projection, the nostrils were directed forwards and upward, the ear-holes were mere fissures, all the regions of the pectoral and pelvic extremities were completed, and the umbilical chord contained several folds of intestine. In dividing the integuments of the back longitudinally, Professor Tiedemann observed some traces of the dorsal muscles, still soft and whitish; and the arches of the vertebral cartilages not being united, the chord enclosed in its membranes was immediately exposed. The incision being continued to the root of the nose, and crossed by a transverse one, the hard membrane (*dura meninx*) was found adhering to the inner surface of the skull, and penetrating between the hemispheres, so as to form the commencement of the vertical or falciform process; the transverse or horizontal portion (*tentorium*) was well marked; the longitudinal and lateral sinuses contained coagulated blood, and the membrane extending into the vertebral canal formed a sheath for the spinal chord. The transparent or arachnoid membrane was not to be recognised. The soft or vascular membrane (*pia mater*, *meninx tenuis*) of some thickness, enveloped all the cerebral parts, and penetrated into the interior of the hemispheres to form the choroid plexus of the lateral ventricles, and a similar vascular net-work in the fourth ventricle; and in the same manner, covered the spinal chord, and penetrated into its posterior fissure. (17.)

The spinal chord, 10⅔ lines long, and of the uniform breadth of half a line, extended along the back to the region of the sacrum, where it terminated in a point, without caudiform expansion (*cauda equina*). It seemed a little thicker only at the origin of the nerves of the pectoral and pelvic members; but its bulk was much augmented at the upper end, where it was continuous with the brain. The longitudinal furrow of its posterior surface was continued from the fourth ventricle to its sacral end; and as it thus includes the space which is afterwards the depression between the restiform bodies, called *calamus scriptorius*, Tiedemann infers, that the fourth ventricle is a simple dilatation of the spinal canal, produced by the mutual separation of its walls. The two sides of the chord gave origin to the spinal nerves, the bulk of which was already considerable. The portion of it named *oblong marrow* (*medulla oblongata*) was perceptibly thicker and broader, and inclined forwards; but the pyramidal and olivary eminences were not yet visible. Its margins, or rather those parts termed restiform bodies, here separated to form the fourth ventricle, while before and below they were continuous with the peduncles of the brain,—a union so much more distinct, that the annular protuberance was not yet formed. The peduncles then went upwards before the cerebellum, to be continued with the hemispheres of the brain. (18.)

In this stage of the process, Tiedemann recognised the following parts in the upper region of the encephalic mass, 1*st*, the cerebellum; 2*d*, the rudiments of the four eminences before the cerebellum, and uncovered by the hemispheres; and, 3*d*, the hemispheres very minute, and separated by a deep fissure. On the inferior surface of the brain,—1*st*, the two peduncles, 2*d*, before them a large mass, indicating the commencement of the mammillary eminences; 3*d*, the pituitary gland; 4*th*, the union of the optic tracts; 5*th*, the two olfactory nerves, very short, and terminating in a bulbous enlargement; and, lastly, the two hemispheres, comprehending not only the anterior, but the middle and posterior lobes, which are not developed, and in some degree are confounded together. (19.)

The peduncles of the cerebellum, issuing from the spinal chord, where its two plates separate to form the fourth ventricle, proceed forward and outward with slight curvature, and, mutually uniting, form the cerebellum. This organ, placed like a bridge over the fourth ventricle, was very narrow on the median line, where its peduncles join, smooth, convex, and entirely without furrows on its outside, concave, and forming the vault of the fourth ventricle within. A perpendicular section presented neither stems, lobes, nor plates or leaves; its free posterior edge was curved inwards; the inner edge united with the membranous masses of the four eminences, and consequently represented the great valve of the brain. The transverse diameter of the cerebellum amounted to four lines. (19, 34.)

The rudimental substance of the four eminences before the cerebellum, bulky compared with this part of the organ, uncovered as yet by the hemispheres of the brain, was two lines and a half long, and two broad. The upper surface was smooth and convex, divided into two portions by a slight longitudinal furrow, but without penetrating into the aqueduct. These rudimental masses rose like thin membranes from the peduncles of the brain, and, bending inwards, approached mutually till they united. Their thin walls enclosed a spacious cavity, continuous before with the third ventricle, and communicating behind with the fourth. (35.)

Before these rudimental membranes of the four eminences, two oblong, smooth, convex eminences, 2½ lines long, and about the same breadth, separated by a longitudinal fissure, elsewhere massive, corresponded to the optic chambers. They rested on the cerebral peduncles, or, to speak more accurately, were expansions of these chords. Their external surface, which was smooth and uniform, the posterior commissure, and the third ventricle, to the funnel *(infundibulum)*, were exposed by slight separation. Tiedemann found neither the pineal gland nor its stalks at this period. (20, 36.)

The hemispheres of the brain were very small, compared with the parts already described; for they were only 4 lines long, 5 broad, and 3 high. To speak with accuracy, the anterior lobes only were formed; for the posterior and middle, which were very short and round behind, resembled two appendages placed before and on the sides of the peduncles. Their surface was smooth, without furrows or convolutions. The deep fissure which separated them above, contained the falciform fold of the hard membrane; and, if more completely separated, the optic chambers and third ventricle were seen, because the Middle Band and Vault were not yet formed. They were joined at the anterior part only before the optic chambers; and this union marked the origin or generative point of the middle band.

The hemispheres were, in short, like two membranous vesicles, with walls scarcely ¼th of a line thick; and, if cautiously turned aside, they might be exhibited under this membranous form, and the anterior of the lateral ventricles, and the rudimental eminences of the striated bodies come into view. At this period, also, the lateral ventricles were found to contain the choroid plexus of enormous bulk,—continued from the soft membrane, and insinuated over the optic chambers, and beneath the inferior edge of the membranous hemispheres. (21, 37.)

The eminences analogous to the striated bodies, were 2½ lines long, and 1 line broad, a little broader before than behind, with the upper surface convex and smooth, and parted by a depression. They were placed near the optic chambers, and applied on the cerebral peduncles, of which they might be said to form the ultimate dilatation. From their outer and anterior margin issued the membrane of the hemispheres, which resulted from the radiation of the peduncular fibres. The fan-like expansion of these fibres was easily distinguished on the inner surface of the membranous hemispheres when everted. These membranes, after bending backward and inward, to form the ventricles and cover the striated bodies, unite before the optic chambers, and thus give birth to the Middle Band, *(corpus callosum)* which is in this stage very small, but may be distinguished by a vertical section of the brain. Previous to this period, the membranous hemispheres are so little developed that they do not cover the optic chambers;—but after this time they become so large, that they are gradually prolonged backward, until they finish by stretching not only over the four eminences, but over the cerebellum. (22.)

A perpendicular section exposes, before the optic chambers, the beginning of the annular protuberance, a narrow stripe, which, rising from the base of the brain, chiefly the mammillary eminences, proceeds upwards and backwards before the chambers (*thalami*), and behind the protuberance, then very small, and almost perpendicular, and at length unites with the membrane of the hemispheres. Tiedemann thinks it undoubted that this little band is the anterior pillar of the vault; but, as the pillars of both sides not only do not unite, but do not even touch, and are separated by the continuation of the third ventricle, no vault is yet found covering the optic chambers; but the orifice which thus establishes the communication of the lateral ventricles, and by which the choroid plexus of each side penetrates, is large and open. The description of embryos farther advanced, will afterwards show the manner in which the vault is formed, and how its anterior pillars, extending backwards, contribute to form the *hippocampus major* and the fimbriated margins. (22, 40.)

The mammillary eminences and the pituitary gland form soft masses, which are applied at once to the cerebral peduncles, and to the lower surface of the optic chambers, and intimately united to them.

The olfactory nerves, which are very bulky, form two little bands, springing laterally from the Sylvian fissure, between the anterior lobes and posterior appendages, and terminating in a small round tubercle. They are very similar to the mammillary eminences of the brains of animals; both are hollow, and their cavity is continuous with the anterior horn of the lateral ventricle, which penetrates into the olfactory nerve before the striated body. Tiedemann concludes from this fact, that these nerves are prolongations, or hollow appendages of the brain. (23, 40.)

Behind the olfactory are found the two optic nerves, which are bulky and united. The two ribboned cords which they represent, cross the peduncles of the brain from below upwards, and from before backward. Tiedemann traced them into the optic chambers, and the common mass of the four eminences; but did not perceive at this period the geniculate bodies.

All the other cerebral nerves were in existence; but the extreme delicacy of their substance, and the thickness of the soft membrane, prevented our author from tracing them to their origin. He saw very distinctly the accessory nerve of Willis. Lastly, the parts of the brain and the spinal chord presented the same disposition and appearance in a second embryo of eleven weeks, and in a third of twelve weeks.

To show the state of the brain in the fourth month, Tiedemann describes minutely its condition and progress in an embryo of from fourteen to sixteen weeks, and 2 inches 4 lines in length. The cranial bones and vertebral arches were still cartilaginous; the hard membrane attached to their inner surface was very thick, sending out the falciform process and transverse portion (*tentorium cerebelli*); the sinuses contained coagulated blood; the soft membrane firm, and traversed with numerous vessels, covered the brain and chord, and penetrated into the cavities, but the arachnoid membrane was still invisible. (27, 42.)

The spinal chord, 19 lines long, descended without caudiform expansion to the sacrum, where it ended in a point, $\frac{2}{3}$ of a line broad at the dorsal region, $1\frac{1}{4}$ line at the origin of the brachial plexus, and $1\frac{1}{3}$ line at the origin of the lumbar and sacral nerves, but $2\frac{1}{2}$ lines at the point where its canal is continuous with the fourth ventricle. The posterior longitudinal furrow and the spinal canal were still present, and a slight longitudinal furrow was observed on the anterior surface. Its upper end, which was broader and thicker (*medulla oblongata*), and bent slightly forwards, now presented two oblong eminences, which could not be mistaken to be the pyramidal bodies; but the lateral surface was plain and uniform, and presented nothing like the olive-shaped eminences. The posterior surface, however, presented on each side a cord proceeding to the annular protuberance, and forming the margins of the fourth ventricle. These cords were the restiform bodies. (28, 44.)

The nervous matter of the chord had been hardened by alcohol; and Tiedemann could detach from its surface, by a sharp needle, fibrous or linear portions, along its whole length, but none transversely,—showing distinctly its fibrous structure. The two nervous cords which compose this organ becoming thicker as they ascend, form what has been termed the *medulla oblongata*. At this part each chord divides into three bundles the posterior, or the restiform body, the middle, or that which subsequently forms the olive-shaped eminence,—and lastly, the external or anterior, which forms the pyramidal body, and which, with the last, is subsequently continued into the peduncle or limb of the brain. Mistichelli and others remarked, that the component fibres of the pyramidal bodies lay across each other obliquely on the mesial plane;—Tiedemann observed this decussation, as it has been termed, distinctly, by separating the margins of the canal of the spinal chord; and remarked some of the fibres proceeding from behind forward, from the right bundle to the left pyramid, and others from the left bundle to the right pyramid. He however observes, that these fibres are scarcely sufficiently numerous to warrant the admission of a complete decussation of the chief chords of the spinal brain. (29.)

In this stage of development, the upper surface of the brain consists of five parts; 1. the cerebellum, broader transversely than in any other direction, but without furrows on its surface; 2. and 3. the two rudimental masses of the quadrigeminous bodies, convex, smooth, polished, mutually confounded, and still uncovered by the hemispheres; 4. and 5. the hemispheres, oblong, parted on the median plane by the furrow containing the falciform membrane. The lower surface presents now, for the first time, the annular protuberance, which is very narrow; the peduncles or limbs enclosing the triangular space, which Vicq d'Azyr named the hollow of the oculo-muscular nerves; a large mass corresponding to the mammillary eminences; then the pituitary gland, hollow, and communicating by the funnel with the fourth ventricle; and lastly, the optic chambers mutually joined. The hemispheres are still but little extensive behind; each consists of an anterior lobe, and another portion, which corresponds at once to the middle and posterior lobe, * parted by the Sylvian fissure, containing the middle cerebral artery. From this fissure, on each side, is detached the olfactory nerve, a prominent chord, which bends inwards to form a small orbicular eminence or swelling. The mass behind the fissure, corresponding to the middle and posterior lobes, is said to be distinguished within by a slight furrow, indicating the separation of the two. The nerve of the fifth pair is seen to issue either before the protuberance, or from its substance; and the others are detached from the ordinary points of origin. Tiedemann could not perceive, on the floor or base of the fourth ventricle, which was still ample, the white streaks which have been erroneously regarded as the origin of the acoustic nerves; but he observed, on each side, nearly at the edge of the spinal chords, where they jut out, a minute eminence, resembling the grey stripe (die graue Leiste, *Taeniola cinerea*) which was first described by the Wenzels, and in which the origin or ganglia of the auditory nerves is correctly placed. (30. 47.)

The restiform bodies rising from the swelling margins of the spinal chords, make a curvature first forward, then backward, to form the cerebellum, and send also several fibres to the protuberance. The cerebellum thus formed, and stretched like a bridge over the fourth ventricle, is 5½ lines broad, 1½ line long, at its middle, and surrounds like a semicircle the posterior face of the quadrigeminous eminences. It presents neither furrows, nor hemispheres, nor vermiform protuberance; it is convex above, concave below, and penetrated by soft membrane; and its hinder edge is thin, and bent behind and a little inward. Tiedemann remarked on the two sides of its lower surface, where the restiform bodies are lost in it, a small, round swelling, which seems to be the origin of the ciliary or moriform body (*corpus ciliare, dentatum, c. rhomboideum.*) A vertical section of the cerebellum shows neither stems (Aeste), branches (Zweige), ramifications (Reiser), nor leaves (Blätter); but transverse fibres were found forming the protuberance where the restiform bodies entered the organ. These fibres, which united the halves of the cerebellum below, are regarded by Tiedemann as the commissures of the organ. The antero-posterior diameter of the annular protuberance did not exceed a line; it was not thick; but presented distinct transverse fibres, which Tiedemann, after an incision, detached from the chords of the spinal nerve, and reverted to the sides. From its anterior border issued a large nerve, the fifth, which was traced through the protuberance to its posterior part, where it formed a minute swelling in the spinal chord, between the restiform body and the middle bundle, which subsequently forms the olivary eminence. From the anterior margin of the middle portion of the cerebellum is detached a plate, which, proceeding to the quadrigeminous bodies, covers the communication between their furrow and the fourth or cerebellic ventricle, and therefore represents the great cerebral valve (*valvula Vieussenii*); the small or posterior valve of Reil (das hintere Marksegel Reils), which does not yet exist, is formed, as will afterwards appear, by the posterior margin of the cerebellum. (31, 50.)

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* We may here remark, once for all, that the arrangement which Professor Tiedemann remarks, and which appears to perplex him, because he is more observant and less imitative than other anatomists, was explained by us, fully one year ago, in our account of the researches of Reil and Malacarne. See Vol. XXI. or Number 78, p. 118.

The part which forms the four eminences (*corpora quadrigemina*), viewed from below upwards, is a large convex mass, between the cerebellum and the cerebral hemispheres, 3½ lines long, 3 broad, with a slight longitudinal furrow in the middle, the trace of their original separation. The anterior is hollow, communicating before with the third ventricle, behind with the fourth. Its membranous walls, 1¾ line thick below, scarcely ⅓ of a line above, rest on the cerebral peduncles or limbs, from which they receive fibres, which turn upwards and inwards so as to meet in the median plane. (32, 51.)

The two cerebral hemispheres are at this period 10 lines long, each 2½ lines broad before, and 4 lines behind, the upper surface smooth, with some furrows here and there, into which the soft membrane (*meninx tenuis*) penetrates. Each hemisphere is divided into two lobes, an anterior and posterior, parted by a superficial furrow, corresponding to the fissure of Sylvius, which is seen most distinctly below. The mass behind this fissure is common to the middle and posterior lobes, which are distinguished by a slight depression only. The hemispheres are membranous sacs or pouches, and a horizontal section exposes their interior, and shows, 1. the optic chambers, each 3 lines long, and 1⅓ line broad,—with the pineal gland, the peduncles of which rise from these eminences, and unite, apparently to form the gland, which is still small and flat; 2. the hemispheres united anteriorly to form the middle band (*mesolobe*), which is still very small; 3. the lateral ventricles filled with the choroid plexus.

Behind the middle band, at this period, two thin chords are observed to spring from the bottom of the third ventricle, and, proceeding upward, unite behind the middle band, then part, and going backward, round and behind the optic chambers, descend to the base of the posterior lobes of the hemispheres. The first or initial part of these chords are the anterior pillars of the vaults;—the latter or posterior, which are thin and flat, are the posterior pillars; which Tiedemann in this manner represents as forming two opposite extremities of the same object. Without and below, towards the optic chambers, is seen their thin border, termed *fringed body (corpus fimbriatum)*; and between this and the upper-posterior surface of the chambers, a large opening, leading to the lateral ventricles, is formed on each side, by which the soft membrane enters under the form of choroid plexus. (32, 52.) We cannot quit this part of our author's researches, without requesting our readers to refer to the description of this opening, or communication between the *convoluted* and *figurate* surfaces of the brain, and the manner in which it is formed, as we delivered it in the same article to which we have already alluded. * We are not aware that any correct account of this communication exists in any British work, and we hardly think even in any foreign one; but we can recommend this as containing an elaborate and faithful exposition of the parts as they are situate in the subject.

By raising the choroid plexus at this period, the observer perceives, first, the striated body, uneven and smooth above, broad before, and narrow behind, resting on the bottom or floor of the ventricle; then a slightly prominent eminence (*cornu Ammonis*), looking backward, inward, and downward, and which corresponds to the posterior pillar of the vault; further back, a little eminence (*hippocampus minor*, Ergot), corresponding to a small lateral pit derived from the ventricle; and, lastly, the fore-part of the ventricle, communicating with the cavity of the olfactory nerve. (33, 55.)

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* Vol. XXI. or No. 78. p. 129—140 inclusive.

After these minute details of the relative progress of the several parts of the encephalic organ, Tiedemann proceeds to describe the mode in which the fibres of cerebral substance are distributed through the brain. He represents the two cerebral peduncles, or limbs, as nothing but the principal cords of the spinal brain; that they consist of fibres going obliquely forward and upward; and that, after being covered by the transverse fibres of the annular protuberance, and giving certain ascending fibres to the quadrigeminous bodies, they mutually separate to the right and left. He represents the cerebral limbs as then penetrating into the optic chambers, or rather swelling out to form these eminences, in which the fibres may be discerned by removing from the upper-inner surface a thick layer of the non-fibrous cerebral matter. Of these, some descend to the mammillary eminences; all the rest, which are numerous, pass under the optic chambers forward and outward, and spread like the branches of a fan into the hemispheres, partly into the striated bodies, where they are covered by a thick layer of non-fibrous cerebral substance;—as may be seen by detaching the striated bodies from the peduncles, and turning them backward. The fibres which thus radiate into the membrane of the hemispheres are directed laterally, forward, and backward; but all of them upward; some turn inward to form the upper vaulted wall of the ventricles, after which they descend along the inner surface of the hemispheres to reach the pillars of the vault. Those of both sides unite, and form the Middle or Central Band (*corpus callosum*), which is thus a commissure of the hemispheres. From this arrangement Tiedemann concludes, that the hemispheres of the brain are merely membranes reverted from without inward, and from before backward, which are formed by the expansion or radiation of the fibres of the limbs or peduncles of the brain; and he thinks this idea easily explains the circumstance of their great thickness near the striated bodies, and their great tenuity within. (35.)

The fibres which descend by the inside of the optic chambers to the mammillary eminences turn forward, and ascend behind the middle band, in the form of anterior pillars of the vault, and afterwards descend to a greater depth in the organ, as the posterior pillars, or the horns of Ammon.

Tiedemann found the same arrangement and structure in the brain of a fœtus of sixteen weeks. (35, 58.)

To show the progress of development during the fifth month, Tiedemann examined the spinal chord and brain of a fœtus of seventeen or eighteen weeks, which had been long preserved in alcohol.

The hard membrane (*dura meninx*), very thick, traversed by whitish grey fibres, adhered to the inner surface of a cartilaginous cranium, by adhesions which were easily destroyed. Its falciform process, transverse or cerebellic portion, and vertebral part, adhering by cellular (filamentous) tissue, were distinct; and the sinuses, as usual, contained coagulated blood. Professor Tiedemann could not perceive distinctly the arachnoid membrane, though he saw thin transparent patches on various points of the pia mater, which could be raised and detached. The soft membrane, very thick, intimately and directly attached to the outer parts of the brain, by vessels issuing from its inner surface, was stretched uniformly over the hemispheres, without folds or depressions, and, entering between the optic chamber and the fringed pillar of the vault, penetrated into the lateral ventricle, to form the choroid plexus, which was bulky and much puckered, and sent minute vessels to the walls of the ventricle. The soft membrane also covered the quadrigeminous eminences and the cerebellum, sinking into the few transverse furrows of the last;—penetrated behind and laterally into the fourth or cerebellic ventricle, to form a large choroid plexus, found, as Tiedemann justly remarks, uniformly both in adult and in fœtus; and lastly, covered the spinal chord, and, entering by the posterior fissure into its canal, adhered firmly to its sides. (40.)

The spinal portion of brain, consisting of two large cords, evidently fibrous, 2 inches 5 lines long, $2\frac{1}{2}$ lines transverse diameter, where it forms the fourth ventricle, $1\frac{1}{3}$ line at the origin of the brachial plexus, $\frac{3}{4}$ of a line at the thoracic region, and $1\frac{1}{3}$ line at the lumbar, terminated at the sacrum in a delicate filament. From the sides the spinal nerves arose by anterior and posterior roots. By a small tube introduced into the *calamus scriptorius*, the whole canal could be distended with air. The chord itself, enlarging at the upper or cephalic end, opened behind to form, first, the *calamus scriptorius*, afterwards the fourth ventricle, at the borders of which was seen a small swelling eminence, corresponding to the grey stripe (*Taenia grisea)* of the brothers Wenzell. Each of the two masses of which it consists, is at the upper end divided into three bundles, to form the pyramidal, the olivary, and the restiform bodies. The fibres of the pyramidal cross each other manifestly before being isolated, and are continued forward through the annular protuberance, to form the peduncles or limbs of the brain. The large olive-shaped bundles placed on the sides of the pyramidal bundles, were smooth and superficial, as the proper olivary eminences had not yet appeared; they were continued forward also through the protuberance, to be applied to the sides of the pyramidal bundles, and contribute, with them to the formation of the peduncles. The restiform bodies, placed quite without, and marking the borders of the fourth ventricle, proceeded downward and backward to form the cerebellum. (41. 64.)

The last mentioned organ, 7 lines in transverse diameter, 2 lines middle antero-posterior diameter, and 2½ lines on the sides, was in the present fœtus the first instance, which furnished sensible traces of a central part (Das Mittelstück), or vermiform process, and lateral regions or hemispheres. The anterior *semilunar fissure* encompassed the hinder part of the mass of the quadrigeminous eminences. The posterior *or purse-shaped fissure* was still indistinct. It was also the first which presented the four transverse furrows of the external convex surface, by which the organ is parted into five lobes, the stems of which corresponded to the stems and lobes, described and delineated by Reil. The first vertical stem (*der erste stehende Ast*), which is smallest, formed the central lobe; the second vertical stem (*der zweite stehende Ast*), formed the upper lobe, and the three horizontal stems formed the lower, the slender, and the digastric lobes (*die drei liegnden Aeste.*) None of these stems had branches or ramifications, so that leaves at their exterior were not to be expected. The lower surface of the cerebellum presented a cavity turned to the stems, and covered the fourth, or cerebellic ventricle, like a vault or cupola; its lateral parts or hemispheres, in which the restiform bodies penetrated, were much extended, and each contained a ciliary body (*corpus dentatum sive rhomboideum*), or medullary nut, as it was named by Reil. The commissures could not be mistaken. The fibres on the side of the restiform bodies, which wound round the spinal chord, and united before it, formed an annular protuberance 2 lines of longitudinal diameter. From the small anterior stem of the cerebellum, was detached the cerebral plate to the quadrigeminous bodies forming the great valve, stretched over the anterior end of the fourth ventricle. The Almonds, or Tonsils (*Die Mandeln*), the Flocks (*Die Flocken*), and the valve of Tarin (*Das hintere Marksegel*), were not yet in existence; the two latter, as will appear, are formed from the posterior border of the cerebellum, turned inwards. (42, 66.)

The hemispheres of the brain, 1 inch 3 lines long, 1 inch broad, though continued backward considerably, do not yet entirely cover the quadrigeminous bodies. Smooth, and without convolutions or unfractuosities above, if separated, numerous deep furrows and the commencement of convolutions are found on their inner surface, or what we termed on a former occasion the *commutual region.* * The two masses of the quadrigeminous eminences, 4 lines long and 3 lines broad, still parted by a longitudinal furrow, present no trace of the four bodies which are subsequently to appear. At the same view may be seen the optic chambers, the pineal gland with its peduncles, the posterior commissure, and the third ventricle, much as in the fourth month. (43, 67.)

The hemispheres are joined before by a commissure, the rudiment of the Middle Band, which is still very narrow. Below and before it, the two anterior pillars of the Vault spring from the mammillary eminences, and send off above two very thin plates, which go to the lower surface of the middle band, and form the translucent or middle partition (*septum lucidum*); and the interval or space enclosed by these two plates, communicates with the general cavity of the middle ventricle, by a small triangular space situate before, between the anterior pillars of the vault, and below the anterior commissure. The subsequent account of the arrangement of the anterior and posterior pillars of the vault, and of the fimbriated border, and the great hippocampus, does not materially differ from that already given during the fourth month. (43, 68.)

The same very nearly may be said of the objects brought into view by a circular section of the inner walls of the membranous hemispheres. These objects are the striated bodies, rolled round the limbs of the brain (*peduncles*), the optic chamber, and the middle band, but, above all, the radiation of the component fibres of the cerebral peduncles, which are seen at this stage of growth, by merely opening the ventricle, but become still more apparent when a very thin layer of non-fibrous matter is removed by a blunt scalpel from the inner surface of the hemisphere.

Tiedemann concludes this description with an account of the objects shown by a perpendicular section through the median plane of the brain, which, as might be anticipated, gives merely different views of objects already examined, but does not add any thing absolutely new. A single remark, however, regarding the source of the optic nerves, must not be omitted. "These nerves," says our author, "manifestly arise from non-fibrous substance, which makes part of the surface of the quadrigeminous eminences, and of the optic chambers. The geniculate bodies are not yet in existence. The two visual nerves proceeding downwards, wind over the limbs of the brain, and unite before. Of their crossing I can say nothing."

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* Vol. XXI. or No. 78, p. 118.

Tiedemann found the same state of the brain and its parts in dissecting a fœtus very little older (46, 73.)

The progress of development during the sixth month, is described from the brain of a fœtus of twenty-one or twenty-two weeks, well preserved by immersion for a whole year in alcohol. With the exception of greyish white fibres crossing in every direction in the hard membrane, the formation of the small falciform process between the hemispheres of the cerebellum, and the appearance of the arachnoid in the form of a very delicate, thin, transparent pellicle at the surface of the soft membrane, there is nothing material to be noticed in the development of the cerebral envelopes (74.)

The spinal chord from the fourth ventricle, to a filament in the sacrum, the commencement of the caudiform expansion (*cauda equina*), measured 3 inches and 5 lines long,—3 lines broad at its upper end *(medulla oblongata)*, 1½ line in the lower cervical region, and 1¼ line at the lower thoracic and upper lumbar region. In the first situation, it made a slight bend forward. The pyramidal bundles being detached before this inflection, crossed at their inner edge, and proceeded forwards, as in other cases, to traverse the protuberance,—with the transverse fibres of which they were covered and partly intermixed, and terminate in the limbs of the brain. The olivary bundles, though broad, were still flat, and without the proper olive-shaped eminences. Their component fibres did not mutually cross at the bend of the chord; but, proceeding forward through the protuberance, were then applied to the upper-outer part of the pyramids, and contributed with them to the formation of the cerebral limbs. From these bundles also fibres penetrated into the walls of the common mass of the quadrigeminous eminences, some uniting to the corresponding ones of the opposite side, others going forward to the optic chambers. The restiform bundles proceeding forward penetrated the cerebellum, where they united with the fibres proceeding to the annular protuberance.

The brain, viewed from above downwards in this stage of progress, was much farther advanced in growth than at any previous period; for though the hemispheres are still destitute of convolutions and anfractuosities, yet they covered not only the quadrigeminous eminences, but almost the whole cerebellum, and were 1 inch and 6½ lines long, and 1 inch broad before, and 1 inch 3 lines behind. It is further remarkable, that, as in the fœtus of five months, depressions and commencing convolutions were first distinctly perceived in their inner or commutual regions, where they are applied to the falciform process, and look to each other. By separating the hemispheres at the same time, the middle band is exposed,—3⅔ lines long, and 1¼ line broad, not yet sufficiently continued backward to cover the optic chambers and third ventricle,—a circumstance from which Tiedemann infers, that this body, beginning before, shoots backwards, in proportion as the hemispheres extend in the same direction (79.)

At the lower surface of the organ both the anterior lobes were now of considerable bulk; the Sylvian fissure was deeper, and ascended a little laterally; the round prominence of the middle lobes, or what we term the medio-inferior or spheno-temporal region, * was well marked; and the posterior or cerebellic region, parted, as is said, by a slight depression, † was of considerable dimensions, and covered the upper surface of the cerebellum (78.)

The cerebellum itself, 8 lines broad, 2⅓ lines in diameter over the vermiform eminence (*vermis superior*), and 3 over the hemispheres, had undergone changes partly in consequence of the growth of the brain, partly in the natural progress of its own development. Almost entirely covered by the posterior hemispheres, its upper surface was flattened, and the vermiform eminence a little sunk. The posterior notch,—*the purse-like fissure* of Reil, existed, though indistinctly. The upper surface was marked by many very deep transverse furrows; and not only was the division of lobes already formed, as in the last instance, but branches were developed on the stems. The lower surface of the cerebellic hemispheres was also furrowed transversely. The cavity of the cerebellum had diminished in capacity, and the posterior border was reverted from without inwards. The upper peduncle, or the limb of the cerebellum, the great valve, and the anterior peduncle, destined to form the protuberance, were much developed. The ciliary bodies *(corpora dentata)*, or great medullary kernels of Reil, were also perceived in the hemispheres. The canal of the spinal chord still communicated with the fourth ventricle. Tiedemann observed distinctly, as in a former case, the grey stripes (die grauen Leisten, *Taeniæ griseæ*), of the brothers Wenzel on the sides of this ventricle, but could not distinguish the white streaks regarded as the source of the auditory nerves (51.)

It may here be noticed, that the protuberance was 2½ lines long, broad, prominent, and marked on the median line by a longitudinal furrow for the basilar artery, and that it doubtless was formed of transverse fibres, uniting beneath the cerebellic hemispheres. Before it were the limbs of the brain a little parted from each other; and in the intermediate space a bulky shapeless mass represented the mammillary eminences still confounded together. A little forward the pituitary gland, conical or pyramidal in shape, and the united optic nerves were seen (78.)

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* Vol. xxi. No. 78. p. 118.

† We doubt the existence of this notch or depression, for reasons assigned formerly, in vol. xxi. p. 118.

The common mass of the quadrigeminous eminences, 4 lines long and 3 broad, entirely covered by the posterior cerebral lobes, was uneven and smooth above, and parted in the middle by a straight longitudinal furrow. The mass rested chiefly on the middle or olivary bundles of the spinal chord, from which it derived ascending fibres, which bent inwards, and united with those of the opposite side. These fibres had at this period greatly augmented in volume, so as to render the walls of the mass much thicker (1⅔ line), and to diminish remarkably the enclosed cavity. Of the optic chambers nothing remarkable is to be mentioned, unless that they were now 3⅔ lines long, and 3 lines broad, each.

When the optic nerves were traced to the outer surface of the quadrigeminous eminences and the chambers, it was perceived that they had formed a little swelling eminence, *the geniculate body*, which could be detached with the nerve in the form of a layer, without fibrous appearance, from the outer surface both of the quadrigeminous eminences and of the optic chambers. (82.) The inference from this is,—that the geniculate body, which may be regarded as the visible origin of the optic nerve, is common at once to the optic chamber and the *nates* of its own side.

A horizontal section of the left hemisphere, to expose the lateral ventricle and the parts contained, showed the following peculiarities. 1st, The walls, especially the external, considerably increased in thickness; 2d, the ventricle, still very spacious, but rising above the surface of the middle band (*corpus callosum*); 3d, the great hippocampus with its fimbriated border; 4th, the small hippocampus extending behind into the digital cavity or posterior horn; 5th, the striated body in the form of a broad, round protuberance, 7 lines long, 3⅔ lines broad before, and 1½ behind, winding round the cerebral limb as it issues from the optic chamber; 6thly, and lastly, a groove between this and the optic chamber,—consequently, he concludes, the semicircular band (*taenia semicircularis*) was not yet in existence. (53.) We doubt whether the groove can be regarded as a proof of its not existing; for this band is in many subjects not elevated, and rather a hard, horny depression, marking merely the union, or rather parting, of the striated body and optic chamber.

In speaking of the vault, he notices the thin plates proceeding from the lower surface of the middle band, to form, by mutual application, the translucent partition, (*septum lucidum*) They were still unconnected below, and the intermediate space or cavity communicated by an opening behind the anterior pillars of the fornix, with the third or middle ventricle. The partition and the middle band were already greatly more developed than in the previous case;—they had followed the brain in its general growth and extension backwards. The anterior pillars of the vault bent backwards round the optic chambers, and, proceeding to the great hippocampus, formed the fimbriated bodies and the posterior pillars. (55.)

Professor Tiedemann then proceeds to describe the expansion or radiation of the fibres from the limbs or peduncles, into the hemispheres of the brain. It is, perhaps, more full than that given of the four-month fœtus. The peduncle having issued laterally from the optic chamber, spreads its fibres like rays, forward, outward, and backward. Some are directed upward into the striated body, the upper part of which consists of a layer of non-fibrous substance. The fibres radiating into the hemispheres are first directed upward, then bend inward to form the vault of the lateral ventricles and the upper surface of the hemispheres. Again descending along the inner or mesial surface, the anterior and middle fibres uniting with those of the other side, form the Middle Band or Beam *(Corpus callosum)*; while the posterior fibres are confounded with the posterior pillars of the vault, and form the Great Hippocampus. This radiation of the peduncular fibres forward, laterally, and backward, their direction inwards, and the course which they pursue downwards, Professor Tiedemann is of opinion, explain the manner in which the lateral ventricle is formed, into which there is no entrance but by an opening under the vault and semicircular fringe. These fibres, however, are not expanded in this direction only; for they radiate also towards the circumference of the organ,—or, in other words, from their surface other fibres spring and radiate from within outwards, that is, towards the convoluted surface of the organ. (54.)

Having traced the successive progress of the cerebral hemispheres each month from thin membranes till they acquire considerable thickness, Professor Tiedemann concludes this section with an explanation of the manner in which, as he says, this effect is accomplished.

" The vessels of the soft membrane which envelope the cerebral substance, and in which no one doubtless will refuse to see its creative and nutritive organs, separate from the blood, which they convey to the brain, by means of minute vessels detached from its inner surface, the new cerebral pulp, or the substance which gives it birth. This pulp is then disposed in layers from within outward. It crystallizes, if I may so express myself, in the form of fibres, which apply themselves to the surface of the fibres first formed. The growth of the soft membrane, and the successive deposition of new layers over the old, give the walls of the hemispheres daily greater thickness. This opinion is supported by proofs derived from examination of the cerebral substance. When the soft membrane (*pia mater*) is detached from the brain, layers of cerebral matter, more or less thick, always continue attached to its inner surface,—which is evidently to be ascribed to the outer soft matter last deposited, still adhering to the vessels of the inner surface of the membrane. The layer of cerebral substance which adheres to the detached portions of soft membrane and the upper layer of the brain, divested of this envelope, are both equally soft and destitute of fibrous aspect. In the microscope, they appear to be formed of very small globules. By tearing the brain, we see the fibres on which the soft unfibrous substance is deposited in layers. This substance, which has been secreted most recently, has not yet had time to assume the fibrous form. It will perhaps be said that it corresponds to the cortical or grey cerebral substance; but this objection can have no force, when it is remembered, that the cortical matter is not deposited at the surface of the brain till after birth." (55.)

To show the progress of cerebral development during the seventh month, Tiedemann describes the brain of a fœtus of twenty-seven weeks, well preserved by long immersion in spirit of wine.

The spinal chord $1\frac{2}{3}$ lines broad at the upper end, 2 lines at the origin of the brachial nerves, and in the lumbar region, and 1 line at its middle or narrowest part, terminated in a point extending to the last lumbar vertebra, and in bulky nervous threads corresponding to the caudiform expansion. The capacity of the canal had diminished, and its walls were covered with a thin layer of unfibrous substance, which adhered in patches to the fold of soft membrane which had penetrated the canal. At its occipital portion (*medulla oblongata*), where its transverse diameter was $4\frac{1}{2}$ lines, it was easy to distinguish the pyramidal, olivary, and restiform bodies. The first were 3 lines broad and 1 long, and made a sensible projection. The pyramidal bundles mutually crossed before forming these eminences; and these component fibres which went to the cerebral limbs, were covered and partly intermixed with the transverse fibres of the protuberance. Each of the olivary bundles now supported an olivary oval-shaped body, 2 lines long, 1 broad, consisting of non-fibrous pulp, deposited on the surface of cerebral fibres, which proceeded forward to the common mass of the quadrigeminous eminences. The external bundles, or restiform bodies, entered the cerebellum, as usual. (60.)

The cerebellum, now entirely covered by the hemispheres of the brain, was 9½ lines transverse diameter, and 4⅔ longitudinal diameter in each of the hemispheres. The posterior notch still indistinct. On the whole upper surface were numerous transverse furrows, some of which penetrated to a certain depth, and formed lobes; others less deep formed ramifications only. The lobes of which Reil has given an accurate description were perfectly parted by large deep furrows,—showing the central lobe of Reil, the four-sided or anterior-upper lobes, the posterior-upper, the posterior-lower, the slender lobes, and the two-bellied or digastric. The lower vermiform eminence was not yet sunk, evidently in consequence of the incomplete development of the cerebellic hemispheres; yet it was possible to distinguish in this eminence the objects marked by Reil, the *Knot or Nodule* (das Knotchen) the *Spigot* (Der Zapfen), the *Pyramid* (Die Pyramide), and the *short Cross-bands* (Die kurzen Querbänder). The cerebellic cavity was still large, and on its side the posterior border of the organ, bending inwards, represented the posterior valve, very thin, and terminating on each side in a flat production, which doubtless was the rudiment of the body to which Reil gave the name of *Flock* or *Flocks** (Die Flocken). A perpendicular section through the middle of the organ showed the stems and branches radiating from the centre to the circumference, and corresponding to the several lobes; the vertical stem to the central, as well as the four-sided or anterior-upper lobe; the great horizontal stem to the posterior-upper, the posterior-under, the slender, the two-bellied lobes, and the several parts of the lower vermiform process. But though the stems (*Aeste*), branches (*Zweige*), and ramifications (*Reiser*), were observed in this cerebellum, no leaves were yet found; and as these are exterior and last-formed, Tiedemann infers, that the development of the organ takes place from within outwards, or from the centre to the circumference, and confirms this opinion by sections of the fœtal brain at three, four, five, six, and seven months of uterine life (61, 62.)

The restiform bodies formed in each cerebellic hemisphere, the spheroidal swelling of the ciliary or vermiform body *(corpus dentatum)*, medullary nut of Reil; and from this some fibres radiated into the stems and their ramifications; others, winding round the pyramidal and olivary bundles, were lost in the protuberances; and others went forward to penetrate the common mass of the quadrigeminous eminences, and form the upper peduncle or ascending portion of the limb of the cerebellum.

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* See vol. xxi, p. 126.

The fourth ventricle presented nothing remarkable, except the grey stripes of unfibrous matter on its floor.

The brain considerably increased in volume, not only covered, but extended beyond the cerebellum,—1 inch 10¾ lines long, 1 inch 2 lines broad before, and 1 inch 5⅔ lines behind. The upper convex surface was marked with some slight excavations, the rudiments of convolutions and anfractuosities, containing folds of the soft membrane. The Sylvian fissure was now very deep, and bent backwards, containing the middle cerebral artery, transmitting numerous ramifications into the perforated space. The anterior lobes were all marked with distinct furrows, and presented the olfactory nerve proceeding forward and terminating in an oval swelling. The middle lobes were rounded and prominent, marked with one small depression. The posterior lobe covering the cerebellum projected beyond it, so as to form a pit or cavity containing it. (96, 92.)

The Middle Band, now 9½ lines long, extending back upon the optic chambers, evidently consisted of transverse fibres penetrating into the hemispheres, and presented in its upper surface the two anterior cerebral arteries, sinking into the cavities at the inner or commutual surface of the hemispheres. Yet it was still below the level of the greater part of the white substance of the hemispheres, while in the complete stage they are on a level. This difference Tiedemann ascribes to the hemispheres having not yet acquired their whole thickness, and to their being turned inward or toward the mesial plane, to cover the lateral ventricle like a vault or cieling. The section of the hemisphere was thickest near the striated body, 4⅓ lines; 2½ lines behind and before, and 1½ at its thinnest. The whole section presented the fibres radiating upwards and towards the circumference, and in successive layers from within outward, indicating, according to our author, the mode of successive superposition. (63.)

The lateral ventricle was very capacious, considering the thickness of its walls, 1 inch 6½ lines long, and formed three great horns, of which the anterior still communicated with the cavity of the olfactory nerve. The middle descended into the forepart of the posterior lobe, and contained the great hippocampus, and the posterior wound back to the hinder part, and contained an eminence corresponding to the small hippocampus.

Before the cerebellum, the quadrigeminous eminences were found now for the first time, truly developed, and distinguished by a transverse furrow into anterior and posterior (*Nates and Testes* of old anatomists), the former 4½ lines each way, and the most bulky of the two. They were formed partly from the fibres of the olivary bundles, ascending obliquely on their sides, and uniting mutually,—partly from those of the upper peduncles of the cerebellum penetrating forward and outward into the eminences, and thus being covered by those of the olivary eminences,—the whole being enveloped in non-fibrous cerebral matter.

Beside the anterior pair of the quadrigeminous eminences, was now found the outer geniculate body *(corpus geniculatum externum)*, consisting of substance destitute of fibre, penetrated with numerous blood-vessels. Tiedemann traced the optic nerve into this body, into the anterior pair of eminences, and into the unfibrous substance of the upper region of the optic chambers; and concludes, therefore, that it is at once derived from all three.

Each of the optic chambers was 4½ lines long, and 3 lines broad in the middle; the commissure did not exist; from their upper surface rose the pedicles of the pineal gland, which, going backward, were lost in the gland, a small soft round flat body, without any trace of sand. By removing the unfibrous substance of the outer surface of the optic chamber, it was possible to distinguish the ascending fibres of the cerebral limb continued into the striated body, (65.)

The striated bodies, bulky and prominent, were each 9 lines long, and broader before than behind, parted from the optic chamber by a groove in place of the semicircular fillet (*taenia semicircularis*), which was not yet in existence, and embracing the cerebral limb, the fibres of which, after traversing the optic and striated body, radiated into the hemispheres. There was no difficulty in recognising here two orders of radiating fibres; one set directed upward, backward, and inward, gave origin to the middle band, by uniting with those of the opposite side; the others spread to the circumference of the organ, and formed a sort of layer over the preceding set of fibres. They were covered entirely by a layer of soft substance to which the vascular membranes adhered, and into which its folds penetrated.

In examining the lower surface of the cerebral limbs and optic chambers, Tiedemann perceived, on each side, a thin chord or bundle of fibres descending from the lower surface of the *thalamus* into the corresponding mammillary eminence. Gall described and delineated this chord, to which Reil gave the name of *Root of the anterior pillar of the Twain-band or Vault.* Composed of longitudinal fibres, it made a turn within the eminence, then ascended, forming the anterior pillar, and joined that of the opposite side to constitute the Vault. From its inner margin, a thin plate proceeded to the lower surface of the Middle Band, where, with that of the opposite side, it constituted the Translucent Partition. Though the middle band thus covered and closed the space between these plates (ventricle of the *septum lucidum)*, it still communicated below with the third ventricle. (66.)

The cords of the vault, after winding backward over the optic chambers, mutually separated behind, and were united only by a thin cerebral plate, indicating now the formation of the part to which the ancient anatomists gave the name of *Psalterion*, and the more recent that of *Lyre*. Proceeding backward and downward along the course of the inferior or middle horn, they formed the great hippocampus of each side *(Cornu Ammonis)*, and at the end was found the round eminence termed the Foot, or *Pes Hippocampi*. By the opening here, the vascular membrane was observed, as in the adult, to penetrate into the ventricles, and form the choroid plexus.

The cerebral nerves were large, compared to the mass of the brain, and easily seen.

In the eighth month the organ is already completely formed, and long details become unnecessary. Tiedemann has therefore given a short account of the state of parts in a fœtus of about thirty-four or thirty-five weeks.

The spinal chord was as usual much enlarged at the origin of the brachial and crural nerves (2½ lines broad.) Its canal still existed, though much contracted by a soft vascular matter deposited on its inner wall. The occipital portion *(medulla oblongata)* 5 lines broad, presented at first the pyramids with mutually crossing fibres; then the olivary eminences spreading laterally into the quadrigeminous bodies; and, lastly, the lateral bundles which ascended into the cerebellum.

The cerebellum, 11 lines transverse diameter, 4½ lines middle longitudinal diameter, 6⅓ lines hemispheric long diameter, was perfect in shape, but incomplete in the number of leaflets, *(foliola)* which was fewer than in the state of full development. The hemispheres had greatly increased in volume, and the vermiform eminences or commissures were more depressed; the posterior notch or purse-like fissure, and the *vallecula* were deeper and more ample. The leaflets which appeared to have been deposited in layers, came away adhering to the vascular membrane, and left the branches of the stems exposed.

The hemispheres of the brain, 2 inches 11 lines long, 2 inches 1 line broad, and 1 inch 10 lines deep, covered the cerebellum, and extended beyond it. They were every where traversed by furrows receiving the folds of the vascular membrane; but these furrows, and the eminences or convolutions which they formed, were no where more conspicuous than on the anterior and fore part of the posterior lobes; fewer were seen on their posterior region. The fore-part of these lobes were round and protuberant. When the vascular membrane was detached from the upper surface of the brain, and from the walls of its anfractuosities, a layer of soft substance adhered; and when this was removed by immersion in water, the membrane presented a multitude of flocculent processes, which were merely delicate blood-vessels, which had penetrated the cerebral substance. (73.)

The quadrigeminous tubercles, 5 lines each way, by increasing in size, had diminished the aqueduct of Sylvius. Each optic chamber was 6½ lines long, and 4 lines broad. The annular protuberance was 4 lines long and 5 broad.

In this last body the longitudinal fibres of the pyramidal bundles having crossed and intermingled in several points with its transverse fibres, quitted it more bulky than they had entered, and, forming the cerebral limbs, plunged above into the hemispheres. After traversing in the same direction the optic chambers and striated bodies, and thus reaching the outer surface of the hemispheres, they spread their fibres like a fan upward and backward. Tiedemann, after cutting slightly the outer layer of unfibrous substance at the fissure of Sylvius, and scraping it with the handle of a scalpel, perceived this radiation most evidently. The fibres rising from the fissure bent inward over the lateral ventricle, which they covered, like a cieling, and, meeting those of the opposite side, formed the middle band.

The roots of the anterior pillars of the vault going, as already described, to the mammillary eminences, and forming them by inflection of fibres, proceeded forward to form the anterior pillars, upward to form the vault, and the plates of the translucent partition, *(septum lucidum)*, and downward to form the posterior pillars, and the great hippocampus on each side in the anterior and lower region of the posterior lobe.

Professor Tiedemann concludes this part of his subject with an account of the state of the brain and its parts in a fœtus, in the beginning of the ninth month of uterine life. The minuteness with which we have followed him in the two last descriptions, render it almost unnecessary to dwell on it; as the state of parts is in general so similar in the eighth month, and at the full time, that we should unavoidably repeat much of what we have already enumerated. We therefore select only those circumstances which are striking and peculiar.

The spinal chord terminated in a considerable caudiform expansion. The canal, though still existing, was small and narrow, and its walls supported a thick layer of soft reddish substance, penetrated with a multitude of minute vessels, from the posterior fold of the vascular membrane. This substance was most abundant at the origins of the nerves.

Of the cerebellum, the posterior or purse-like fissure was now very large; the upper and lower surfaces traversed with numerous furrows, the deepest of which parted the lobes, the less deep the lobules, and the shallowest the leaflets or plates. All the parts remarked by Reil in the vermiform body, the short Cross Bands, the Pyramid, the Spigot or Plug, and the Nodule, were developed. On each side of the last object the narrow posterior valve proceeded to the Flocks *(Die Flocken)*, and the Tonsils or Almonds were distinct. The Ciliary or Moriform bodies in the centre of the restiform stems sent off white cerebral pillars like stems, which divided into branches, ramifications, and leaves.

All sides of the brain presented deep furrows and numerous convolutions; and the Sylvian fissures were very deep, and run upward on each side. The optic chambers were now for the first time observed to be united by their proper commissures, the soft before, and the other behind. The pineal gland presented no trace of sandy matter. The striated bodies no longer formed an eminence so distinctly marked as in the brains previously described; but were sunk more remarkably into the outer wall of the hemisphere, which had become thicker. Between them and the optic chambers on each side was now seen, for the first time, a soft mass traversed by vessels, filling the void space or groove hitherto found in this situation, and therefore representing the semicircular fillet. Each mass concealed a large vessel, in removing which the fillet was also detached. The description which follows, of the disposition of fibres in the hemispheres, is very clear and full, but does not materially differ from that already given during the seventh and eighth months. Lastly, it is worthy of notice that the communication of the ventricle with the cavity of the the translucent partition, and with that of the olfactory nerves, is not said to be closed even at this period.

On the relative proportion of grey and white matter, and the respective formation of both, we have the following remarks.

" I have several times dissected recent brains either of foetuses of six, seven, eight, and nine months, or of new born infants, to obtain a just idea of the relation which might exist between the several cerebral substances in the different parts of the organ. The uniform result of my researches has been, that it is impossible to establish any distinction between the grey matter and the white on the brain of the fœtus. All the parts of which the fœtal brain consists are formed of a homogeneous, reddish white substance; and this reddish tinge evidently depends on the numerous delicate blood-vessels, which are distributed to its substance. In all the parts of the adult brain, in which the grey substance is accumulated in considerable masses, as in the limbs, where it forms the black spot (*locus niger, tache noire*), the striated bodies, the optic chambers, &c. I have found only more abundant and more voluminous vessels, than in those which consist of white substance after the period of birth.

In consequence of this fact, the names given to certain parts by anatomists are not applicable to the same parts of the fœtal brain, as is evinced in the instance of the striated bodies. In point of fact, the parts which composed these eminences in the fœtal brain are not striated, but consist of a homogenous white mass with a reddish tint, and penetrated by a multitude of large vessels. Nor is there at this period any difference of colour between the grey or cortical and the white or medullary substance, either in the convolutions of the brain, or in the plates and leaflets of the cerebellum. The outer layer which corresponds to the cortical substance is reddish white as well as the inner, which corresponds to the medullary substance. The only appreciable difference which appears to exist between these two substances in the fœtal brain, consists in the outer layer being softer, and perhaps less abundant in vessels, than the inner portion." pp. 80, 81.

The author concludes with some observations on the arachnoid, which he agrees with Bichat in referring to the head of serous or shut membranes. It covers the outer or non-adherent surface of the vascular membrane (*pia mater*), but without following it into the furrows of the brain or cerebellum; it sends processes to the nerves issuing from the brain, and piercing the hard membrane; and is reflected or reverted along the inner surface of this membrane and its productions, giving them the smooth glistening aspect for which this surface is distinguished. It extends through the occipital hole along the vertebral division of the soft membrane, which it also covers; it invests the anterior and posterior roots of the spinal nerves, until they penetrate the vertebral division of the hard membrane, when it is also reflected along its inner or free surface; and lastly, by doubling its folds, it forms the denticulate ligament *(ligamentum denticulatum)* between the inner surface of the hard, and the outer surface of the soft membrane. This distribution Tiedemann has several times found both in the fœtal and the adult brain; and he therefore infers, that the arachnoid membrane constitutes a shut sac enveloping the brain and spinal chord, and cerebral ends of the nerves, and thence reflected over the inner surface of the hard membrane and its falciform productions.

We now proceed to the second part of Professor Tiedemann's work, in which he traces, from the facts collected in the first, the history of the formation and growth of the individual parts of which the encephalic organ consists, and describes the successive steps by which each part is constructed and united with the others, to form a complete and perfect organ. Though, in this inquiry, his proper object is to unfold the growth of the human brain, he takes frequent occasion to illustrate this process, by referring to similar or analogous facts in the formation of the organ, in the several classes and orders of the animal kingdom at large. In following this line of inquiry, he has succeeded in eliciting, from comparative anatomy, several very interesting facts illustrative of the structure of the human brain, and has demonstrated the existence of a train of curious relations between the structure of the central mass of the nervous system through the whole animal world. We must restrict our account of this part of our author's work to the most important and indispensable results only.

The Spinal Chord and its canal, the Olivary and Pyramidal Bodies. Till the middle of the second month, the spinal chord is a membranous canal containing a transparent fluid. About the end of the second month it becomes soft and pulpy like white of egg, and its transparency is diminished; and by microscopic examination, it appears to consist of minute globules. It is at the end of the fourth month only that we begin to distinguish, on its anterior surface, small parallel fibres following a longitudinal direction. Their number then gradually augments, not only before, but on the sides. The chord may at this period be considered as a hollow cylinder, the thin walls of which are separated behind by a longitudinal fissure, which therefore communicates directly with the inner canal. The formation of this canal, in the early months of uterine life, and its subsequent obliteration, may be easily understood. During the second, third, and fourth month, the calibre or area of this canal is much greater, in proportion to the thickness of its walls, than subsequently. The contraction which it then undergoes depends on the successive deposition of new matter from the vessels of those folds of vascular or soft membrane which enter the posterior opening, which at the same time increases the thickness of the walls of the chord, and diminishes the space between them. This substance is soft, reddish, and very vascular during the two last months of uterine life. Tiedemann infers from this, that the formation of the outer or cortical part is posterior to that of the fibrous medullary, that it is applied from within outward on the surface of the last, and that the opinion of M.

Gall, that it is formed previous to the medullary, is absolutely false; in so much as the roots of the spinal nerves are visible in the second and third month, though no grey or cortical matter is yet deposited in the chord.

This canal is found not only in the spinal chord of the human fœtus, but in those of mammiferous animals in general, and even during the early part of life in some of them. Frederic Meckel found it in an embryo buck-rabbit; and it was found in young animals of the dog, pig, sheep, ox, and horse kind by W. Sewell, who says it was filled with a colourless opaque fluid similar to that of the cerebral ventricles. The most interesting part, however, of this series of organic relations, consists in the fact of this canal existing uniformly and during the whole life of the animal, in fishes, reptiles, and birds. Tiedemann found it in many fishes both of fresh and salt water, as the skate and thornback (*raja*), the shark (*squalus*), the toad-fish, gurnard, bream, bandfish, pike, shad, salmon, carp, &c. and always observed its inner surface to consist of a layer of grey matter. These observations are confirmed by those of M. Arsaky, in his dissertation on the brain and spinal chord of fishes. Tiedemann also observed the spinal canal in the common tortoise, a young Nilotic crocodile, the wall-lizard (*lacerta agilis*), the ringed snake (*coluber natrix*), the land salamander, the green frog (*rana esculenta*), and the common toad. Lastly, the spinal chord of birds presents it not only in the fetal state, but during adult age; and a remarkable excavation which it forms at the lower end, was long since noticed by Steno, Perrault and Jacobaeus, under the name of *Rhomboidal Sinus.*

Though it is not found in the chord of the human adult, when regularly developed, it cannot be doubted that it has been occasionally observed when the process of growth or formation was tardy and imperfect. This phenomenon was first described by Charles Stephen, and has been since observed by Columbo, Piccolhomini, Bauhin, Malpighi, Lyser, Golles, Morgagni, Haller, and Portal. Some of these authors even regarded it as a uniform and natural arrangement, an opinion which has been justly opposed by Varoli, Monro, Sabatier, and others. The two canals which Nymmann mentions, and which Gall pretends to have demonstrated in the spinal chord, are fictitious, and must have been the effect of insufflation.

Tiedemann then shows, that the anatomy of the fetal spinal chord contradicts the hypothesis of Gall, that this part consists, in mammiferous animals, of a series of ganglions, distinct, but adherent to each other, and corresponding in number to that of the spinal nerves. He agrees, however, with this author in saying, that the points of the chord, where grey or cortical substance is most abundant, are those from which the largest nerves issue; but, as this grey matter is a subsequent formation, refuses to admit the inference that it is the source or womb of the nervous chords. In other respects, the spinal chord of the human fœtus bears a close resemblance to that of animals referred to the inferior classes—for example, fishes, reptiles, and even birds. *First*, it exists without caudiform expansion, the rudiment of which cannot be recognised before the end of the fourth month; *secondly*, it extends the whole length of the column, without presenting those tubercular bodies which have been described in the adult chord by Vieussens, Tarin, Winslow, Haller, Huber, Frotscher, and others; and, *lastly*, it is much more voluminous, in proportion to the brain, in the early periods of uterine life, than it is in the adult. This last fact has led Tiedemann to modify the assertion of Söemmering, that the spinal chord is smaller in relation to the brain in man, than in any other animal, mammiferous or oviparous, and to restrict it to the adult only; for the fetal chord he has shown to be much larger in proportion to the brain during the early months of uterine life, than after birth. This depends on the small size of the brain at the beginning of uterine life; for during the five last months, when this organ grows with rapidity, and attains a considerable size, the proportion soon begins to vary, and is subsequently very much changed.

The curvature which the occipital portion of the chord presents, depends undoubtedly on the flexion of the head on the breast. As the annular protuberance is not formed before the third month, the chord appears to be continuous with the limbs of the brain, as in fishes, reptiles and birds, which are equally destitute of this part. In the fourth month only, when the rudiments of the protuberance appear, the boundary of the occipital portion of the chord (*medulla oblongata*) is marked by the transverse fibres which unite the two hemispheres of the cerebellum below.

In the fifth month, the anterior part of the occipital portion of the chord, which was previously a flat plane surface, as in fishes, reptiles and birds, begins to make a gentle projection, in consequence of the addition of new cerebral matter. During the three following months this process of deposition goes on;—the parts thus formed, which are the pyramidal bodies or anterior eminences, are each 4½ lines long, and 1½ broad. Dominico

Mistichelli, a physician at Rome,[*] and Pourfour de Petit,[†] first remarked, about 115 years ago, that, in the linear depression between these two bodies, fibres or cords were seen to proceed from each, and mutually cross. The same appearance was subsequently noticed by Santorini, Winslow, Lieutaud, and Soemmering, but had escaped the researches of Haller, Vicq D'Azyr, Monro, and others; and was therefore doubted or denied, till again brought forward and made the basis of speculative opinions by Gall of Vienna. There can be no doubt of the fact, that cords or threads of white cerebral matter are seen lying obliquely across the pit between the pyramidal bodies, and that those of the right side seem to be plaited with those of the left. Tiedemann saw this appearance as early as the fourth or fifth week of uterine life, in that part of the chord where it bends forward, corresponding to the lower end of the pyramids; and he justly remarks, that it is not a crossing of the whole mass of the two cords of the spinal brain, but simply of their middle and anterior fibres, or the pyramidal bundles. The subsequent progress of these fibres, which are entirely longitudinal, is represented by Tiedemann as directed to the limbs of the brain, where they are expanded, and become broader. That course, he informs us, is easily demonstrated in the fœtus previous to the third month, when, the protuberance not yet being formed, the fibres of the pyramidal bodies, and those of the cerebral limbs, are observed to be continuous. Afterwards it is less obvious, in consequence of the formation of the transverse fibres of the protuberance; but even then the transverse fibres may be removed, and thus show the longitudinal ones beneath them passing to the limbs of the brain.

Though this course of the pyramidal fibres was known to Varoli, Vieussens, and Morgagni, the second of whom has represented it in his engravings (Tab. 16), Tiedemann thinks that some merit is due to Gall for representing those fibres as ascending from the spinal chord to the brain, which previously had been supposed to descend from the brain to the chord. Now, we should humbly conceive, with the utmost deference to our author, that Gall has no merit whatever in this opinion, and that we do not perceive how the spinal chord can give origin to the brain, any more than the brain gives origin to the chord. The ancient anatomists to whom he alludes, deserve immortal honour for observing and describing the simple fact of fibres passing or lying between the pyramidal bodies and the limbs of the brain; but their familiarity with anatomy, and aversion to speculation, prevented them from committing the error of supposing that the one set of fibres generated the other, or that the chord was a production from the brain. To this point we shall, however, again direct the attention of the reader.

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[*] Trattato dell-Apoplessia. Rome, 1709, in 4to.

[†] Lettre d'un Medécin des Hospices du Roi. Namur, 1710. 4to, p. 12.

The olivary bodies, which are wanting in fishes, reptiles and birds, are formed in the human fœtus only about the end of the sixth, or beginning of the seventh month, when the fibrous substance of which they consist is secreted by the soft or vascular membrane,—showing that their tardy formation depends on the grey matter being deposited after the white. The most of their fibres, according to our author, may be traced to the common mass of the quadrigeminous eminences: others go forwards and laterally to the optic chambers, where they unite with those of the pyramidal bodies. The opinion of Gall on these bodies is quite untenable.

Of the restiform bodies our author says nothing which we have not already noticed.

After this general exposition our author proceeds to consider the investigation of a problem to which he attaches, in our opinion, an unreasonable degree of importance;—the question, Whether the spinal chord is a continuation or appendix of the brain, or the brain an expansion or growth from the spinal chord? The first opinion was supported by Galen among the ancient anatomists, and among the moderns by Achillini, Berenger, Vesalius, Coiter, Spigelius, Riolan, Columbo, Fallopius, Veslingius, Willis, Vieussens, Verheyen, Winslow, Haller, Zinn, and Portal. Thomas Bartholin, Malpighi and Fracassati, on the contrary, not only maintained that the brain was derived from the spinal chord, but collected new arguments to establish it. This idea, therefore, is by no means recommended by its novelty; and perhaps it might have been allowed to sink into inglorious obscurity, if the zeal of M. Gall had not roused the interest and attention of anatomists to it during the greater part of the last twenty years. The judgment and acuteness, however, of this author were by no means equal to his zeal; and whatever was the strength or vehemence of his assertions, it is certain that he never adduced a single conclusive argument in their favour. Tiedemann thinks that his researches have completely determined this question; and in proof of the opinion, that the brain is a growth from the upper part of the spinal chord, he collects the following facts and arguments from the previous part of his work.

1. The brain is very small in proportion to the spinal chord, and results from the prolongation, upward and forward, of its two principal cords; the canal of the spinal chord extends to

the third and fourth ventricles; the cerebellum and the common mass of the quadrigeminous eminences are two plates, proceeding from the chord, inflected to each other, but still separate.

2. The two limbs of the cerebellum rise from the surface of the spinal chord, and unite over the fourth ventricle; and it is then only that its stems, branches, and leaflets appear.

3. The rudiments of the common mass of the quadrigeminous eminences, at first membranes, are formed by the olivary bundles of the spinal chord, then mutually unite, and are gradually strengthened by new additions of substance, till they insensibly acquire the shape and disposition observed in the adult brain.

4. The pyramidal bundles of the chord proceeding forward and upward form the swellings known by the name of Optic Chambers and Striated Bodies, and each terminates in a plate which, reflected on itself backward and inward, forms the beginning of the cerebral hemispheres. In the second month these hemispheres, which are still membranous, are so short, that they scarcely cover the striated bodies. As they enlarge, they extend backward so as to cover in the third month the optic chambers, in the fourth and fifth the quadrigeminous tubercles, and in the sixth and seventh the cerebellum. Their inflection on themselves forms the lateral ventricles.

5. The white or medullary fibres of the pyramidal bundles are immediately continuous with those of the cerebral limbs, pass thence into the optic chambers and striated bodies, and terminate in expanding on the hemispheres.

6. and *lastly*. New layers of cerebral substance are gradually deposited on the surface of the membranous hemispheres, the walls of which are thus increased in thickness; and it is only in the course of the last months that the convolutions appear.

All these peculiarities united furnish, in the opinion of Professor Tiedemann, conclusive evidence, that the cerebellum and brain are produced by the spinal chord, or, to use the language of Reil, are an *efflorescence* of this part of the nervous system; and he thinks the inference is further confirmed by the relative states of the spinal chord and brain in the several classes of fishes, reptiles, birds, and mammiferous animals. We are unwilling, indeed, to show any irreverence for the reasoning powers of a person so distinguished in anatomical and physiological research as Professor Tiedemann; but we are not ashamed to say, that the arguments now enumerated do not produce on our minds that full conviction which is requisite to settle an ambiguous physiological question. We cannot deal harshly with the reasonings of our author, nor are we willing at this advanced state of the subject to enter into any argumentative discussion; but we may be permitted to suggest the following remarks.

All the arguments of Professor Tiedemann proceed on two principles,—that whatever part of the fœtal brain is first observed, gives origin to those which subsequently appear,—and that wherever fibres are seen tending from any one point to any other, these two points stand in the relation of *producer* and *produced*. Now, though the researches of our author show distinctly that the spinal chord is larger or more spacious, in proportion to the brain, in the early months of uterine life than subsequently, they do not prove either that this part is earlier or more fully developed than the brain and cerebellum. All of them are membranous; and it appears, even by his own researches, that parts corresponding to the cerebellum, to the optic chambers, and to the cerebral hemispheres, are seen as early as the rudiments of the chord. But the Professor has himself admitted, and taken some pains to show, that the soft or vascular membrane is the great agent of cerebral generation; and if this be the case, which we regard as much more likely, where is the propriety or the consistency of supposing that one part gives birth to another? We do not think that the transition of fibres from one part to another by any means proves that the former create the latter, or *vice versa*. The parts may be formed by a simultaneous process,—by an action of secretion going on at all points at the same time. Professor Tiedemann seems to think that there is no alternative, and that we must admit that the brain is formed first, or the chord formed first, and that whatever part has thus the priority of existence necessarily creates the others. When fibres are seen passing from the pyramids to the limbs of the brain, and from the limbs of the brain to the hemispheres, and from the hemispheres to the middle band, or from the restiform bodies into the cerebellum, or from the olivary to the quadrigeminous eminences, it by no means proves that the pyramidal bodies give origin to the peduncles, the hemispheres, and the middle band, or that the restiform bodies form the cerebellic stems and branches, or that the olivary eminences form the quadrigeminous,—but simply that these several parts are in that state of connexion and communication which is probably requisite for the life of the individual, and the purposes to which the organ is intended to be subservient.

The Cerebellum.—The history of the formation of this part is full and perspicuous, but made too much perhaps to establish the general inference, that it is formed from the spinal chord by expansion of the restiform pillars. It is the second month before a narrow bundle or thin plate is observed to proceed from the spinal chord, and, bending over the fourth ventricle, mutually apply without uniting. In the third month, acquiring an increase of size, they represent the restiform bodies, or *peduncles of the cerebellum* of Willis, or *limbs of the cerebellum* of other anatomists, and, meeting in the middle, are stretched like a bridge over the fourth ventricle. In the fourth month, this membranous plate encloses, like a semicircle, the common mass of the quadrigeminous eminences; and at the lower surface of the restiform plates is seen a small swelling, which is the rudiment of the moriform or ciliary body, the medullary nut of Reil, while the fibres which wind round the olivary and pyramidal bundles descend on their anterior surface, and thus, by mutual union, form the annular protuberance. At the fifth month, when the cerebellum appears to extend transversely, four transverse furrows appear deeper on the median line than at the sides, and part the organ into five lobes, which are penetrated by an equal number of stems (Aeste),—but without branches (Zweige), ramifications (Reiser), or leaves (Blatter). In the sixth month, when the lateral regions of the organ are still extending, the middle part becoming elevated, shows the beginning of the vermiform process; the posterior notch is slightly perceptible; and to the deep furrows superficial ones are added, which part the lobes into lobules, into each of which branches are now found to enter. During the seventh month, while the breadth of the organ is still extending, the vermiform eminence begins to present the nodule (Das Knötchen), the pyramids (Die Pyramiden), the short Cross-Bands (Die kurzen Querbander), and the spigot or plug (Der Zapfen); the posterior notch, which is more distinct, forms the Small Valve, and the rudiments of the Flocks of Reil may be distinguished. In the interior, we find the branches parted into ramifications; and the ciliary or moriform bodies, which are now greatly enlarged, sending fibres into the stems, and branches to proceed to the surface. In the eighth month, as these several parts become more distinct and larger, new matter is deposited on the ramifications, which, in the ninth month, is converted into leaves.

Now, we do not perceive that this description proves incontestably, as Professor Tiedemann concludes, that the cerebellum proceeds, and is formed from the two restiform bundles. Though it be admitted that these parts are formed first, it does not follow that they have created or generated the moriform bodies, the stems of the lobes, the branches of the lobules, or the ramifications of the leaflets. The substance of which these several parts consist may have been deposited on the rudimental plates in gradual and successive layers from the vessels of the *pia mater*, till the whole process of development was completed; and, if we adopt any opinion on this ambiguous and obscure subject, this would more reasonably claim our assent. It is indeed remarkable, that Professor Tiedemann has recourse to this method of explaining the mechanism of growth not only in general, but particularly in this case, when he ascribes the successive deposition of cerebral substance on the surface of the moriform bodies, and the restiform processes, to the secreting power of the inner surface of the vascular membrane. In proof of this, we have only to request our readers to peruse attentively the observations of Professor Tiedemann, at p. 104, on the growth of the cerebellum.

But, divesting the subject of all hypothetical opinions on doubtful or ambiguous questions, the progressive and relative growth of the different parts composing or connected with the cerebellum, is exceedingly interesting. Though the first rudiments of the cerebellum appear on the sides, these are the parts which are last completed. The middle or central part, to which anatomists have given the name of *Vermiform Eminence*, is observed about the beginning of the sixth month, when its size is considerable, compared with that of the hemispheres, and when, in consequence of the same circumstance, the posterior notch is not formed. At this time, however, the moriform bodies extend rapidly; and at the same time, by the secretion or deposition of new matter, the hemispheres shoot out laterally and posteriorly, and at a much more rapid rate than the central part; and hence, while the organ is acquiring lateral extent, the posterior notch is necessarily formed. At the same time, the cords which unite the cerebellum to the quadrigeminous eminences, and the transverse fibres of the protuberance are formed, and acquire bulk very nearly at the same rate at which the moriform bodies do.

The development of the human cerebellum in the fœtal state, bears some resemblance to the cerebellum in fishes and reptiles. In the former, it consists of two bundles rising from the spinal chord, and united over the fourth ventricle;—without furrows, lobules, or leaves;—without distinct central part or vermiform eminence;—without annular protuberance and valve of Tarin. In reptiles it may be said to be equally indistinct. In the ray and shark genus, however, of fishes, its exterior is marked by some irregular furrows; and in the

Nilotic crocodile and Cayman, it is parted into two plates by a transverse furrow.

The pyramidal cerebellum of birds makes a closer approach to the standard of perfection. Two bundles or plates rising from the chord unite over the fourth ventricle, and are parted by transverse furrows into several branches, which generally terminate in two stems. The processes destined to form the protuberance, and the protuberance itself, is totally wanting. In the fœtal state, this structure is still simpler; neither furrows nor leaflets are observed in the cerebellum of the chick *in ovo* till the twelfth or thirteenth day. In the mammiferous animals, the cerebellum assumes a more finished and complicated appearance, and seems to approach the standard of the human organ more closely, as it passes through the successive orders of Gnawing animals (*Rodentia*), Ruminating animals, (*Ruminantia*), Hoofed animals (*Solipeda*), Carnivorous animals (*Carnivora*), and Four-handed animals (*Quadrumana*). In the first family, especially the mouse, rat and squirrel, hare, rabbit, marmot, cavy, and beaver, the size of the vermiform process is considerable, compared to that of the hemispheres,—while the stems, branches, ramifications, and leaflets, is inconsiderable. In the ox, sheep, goat and hind, among Ruminating animals; in the horse among Hoofed animals; and in the dog, fox, marten and cat, among Carnivorous animals, the hemispheres are much larger than in the *Rodentia*, compared with the vermiform eminence, and contain many more branches, ramifications, and leaflets. In the dolphin, the proportional volume of the hemispheres, and the number of leaflets, is still more considerable. These facts unquestionably afford confirmation to an interesting remark of Malacarne, on the relation between the number of cerebellic plates or leaflets, and the energy or extent of the faculties in the human race. This learned physician, to whose researches on the cerebellum we before this have adverted, found the cerebellic plates in idiots and fatuous persons greatly fewer, than in those who are distinguished by genius and strength of judgment.

Lastly, the moriform bodies (*corpora dentata*), correspond in the mammiferous animals to the bulk or development of the hemispheres; and the protuberance, which is always present, corresponds to the hemispheres and moriform bodies.

Quadrigeminous Eminences.—It is the seventh month before the transverse furrow is formed, and divides the common mass into anterior and posterior, or *Nates* and *Testes* of the old anatomists. Their outer layer is soft, unfibrous matter, very vascular, and may be scraped off so as to expose the ascending fibres of the olivary bundles, which spread obliquely into the common mass, and unite mutually on the middle. It is to Reil that we owe the most accurate description of the true structure of these bodies. The part which this anatomist termed the *loop* or *knot* (Die Schleife), and which he represented as proceeding partly from the pyramids, and partly from the olivary bodies, corresponds to the prolongation of the olivary bundles, and is expanded, as he says, at the top of these tubercles.

The origin of the optic nerves from the quadrigeminous eminences, which was taught by Gall, had been believed in part by Morgagni, Winslow, Santorini, Zinn, Girardi, and Soemmering. The proper modification of this opinion is now shown by the researches of Tiedemann, who has repeatedly traced these nerves into the quadrigeminous eminences, as well as to the surface of the optic chambers, previous to the fifth month of uterine life. After this period, when the outer geniculate body begins to appear in the form of a soft unfibrous mass, abounding in blood-vessels, part of each nerve may be distinctly traced to it; and Tiedemann therefore concludes, that the quadrigeminous eminences, and the geniculate bodies, are the chief, but without pretending to assert that they are the sole roots of the optic nerves. In all mammiferous animals, the principal roots of these nerves arise from the quadrigeminous eminences, chiefly the anterior pair (*nates*), and from the outer geniculate body.

In considering the various forms which these bodies assume in the animal world at large, the most difficult question is that of their existence in the brain of birds. Willis first asserted that birds were destitute of them; and if the term be understood in its most rigid acceptation, he is correct. But in settling a a point of this nature in the structure of the animal world, we are to be guided, not so much by the likeness of shape and situation, as by general character, and the relation which subsists between the several parts of the organ; and on this principle Professor Tiedemann concludes, that birds are not destitute of parts corresponding to the quadrigeminous eminences. Immediately before the cerebellum of birds are two large smooth eminences, round or oval, parted above by a longitudinal furrow, which have been generally compared by anatomists to the optic chambers. Gall was the first who, in modern times, departed from this view; and though he has been opposed by Franke, a pupil of Reil, he has now the good fortune to number among his adherents the names of Cuvier and Tiedemann, the last of whom has given a clear view of the arguments in favour of the opinion.

Optic Chambers or Couches.—It would not be easy to produce a better example of the unfavourable influence of a name derived from hypothetical principles erroneously applied, than that which is furnished by this part of the brain. Most anatomists have committed the mistake of considering these bodies as the source of the optic nerves, and apparently for scarcely any other reason than that they have been so named from a very ancient period. It is true that the optic tract crosses its lower surface, and, to a superficial observer, might seem to issue from the cerebral mass to which this name has been given. With all his absurdities, Gall had some merit in abolishing this unreasonable assertion; but it was inseparable from his system to banish one error without substituting another in its place; for this he literally did, in regarding the optic chambers and striated bodies as the great and small ganglions of the brain. The absurdity of this doctrine is too palpable, and its inutility too glaring to demand refutation. Reil tried to communicate an idea of their nature by viewing them as a sort of button fastened to the inner side of the limbs of the brain, the fibres of which they collected into a centre before expanding them all round the brain; —and in this spirit named them the *system of the cerebral limbs.* Tiedemann professes to adopt the views of Reil, and regards them as confirmed by the fact of the limbs of the brain being produced in great part by the pyramidal bundles, and acquiring in the mass of the optic chambers a great accession of fibres previous to their ultimate expansion in the hemispheres. Both opinions are in our mind greatly too mechanical; and we cannot help thinking, that the idea of the cerebral limbs being derived from the pyramidal bodies and subsequently enlarged by an accession of fibres in the optic chambers, is merely a bold and gross fiction to aid the mind in conceiving what was otherwise inconceivable. Nor is the facility of conception thus increased; for what new view is given, what new fact is announced, what new idea is communicated, by saying that the fibres of the cerebral limbs receive an accession from the optic chambers? It is certain that these limbs or pillars lay obliquely along the lower surface of the optic chambers, and penetrate through them into the striated bodies; and it is matter of observation, that fibres are seen ascending from them, and spreading like a fan all round the hemispheres. But that these fibres are reinforced, as Gall called it, or concentrated and then expanded, as Tiedemann would have us believe, in the interior of the optic chambers, is a pure matter of opinion, which may be true or may be false, but is certainly not yet determined to our satisfaction.

Striated Bodies.—It is uncertain whether these bodies are found in fishes. In reptiles they are found in the form of an oblong protuberance smooth above, resting on the fibres of the cerebral limb, where they become straight and turn outward to form the thin membranous wall of the hemisphere. In birds they are found under the form of two large convex smooth masses, which constitute the greatest part of the hemispheres of the brain. They are parted from the peduncular swellings or optic chambers, by a slight depression, so as to resemble in this respect the human fœtal brain, in which the semicircular fillet is wanting in the early part of uterine life. In the mammiferous animals they exist in various forms. They are small in proportion to the brain in the dog, fox, cat, ox, sheep, hind and horse; but this apparent want of relation depends on the increased volume of the hemispheres, by the addition of its convoluted part, while in the Grazing animals and in the hedgehog the convoluted part does not exist. In the carnivorous, the ruminating, and the one-hoofed animals, the striated bodies are oblong protuberances, smooth and convex above, rising from the base or floor of the lateral ventricle, and parted from the optic couches by the semicircular fillets. Their upper surface consists of grey unfibrous substance, penetrated by vessels from the choroid plexus; their middle of a mixture of grey and white; and their lower or deepest region of white only. The fibres of the cerebral limbs, after traversing the optic chambers, penetrate into the striated bodies, and are finally expanded in the hemispheres.

In the subsequent history of the formation of the hemispheres, and of the expansion of the fibres of the cerebral peduncles into them, Professor Tiedemann traverses a great deal of the same ground, and gives entirely similar views to those which have already been considered. In general he adopts the opinions of Gall, and confirms the researches of Reil. Our account has already extended to so great a length, that we must not enter on this subject, in which we should do little more than repeat much of what has been already stated, and in some instances urge the same objections which we have already advanced against some of the opinions adopted by Professor Tiedemann. We may merely remark, that our author differs from Reil in the view which that anatomist gives of the structure and formation of the Middle Band. The latter regards it as a particular system of fibres, denominating it the *system or organization of the Corpus Callosum;* the former considers it as formed by the prolongation of the fibres of the peduncles and their union on the mesial plane, and regards this hypothesis of their formation as quite established by the fact, that the Middle Band shoots backward as the hemispheres are developed, and extend in the same direction.

The description of the Vault, Translucent Partition, and the Great Hippocampus and of their formation, is certainly good, but contains very little which we have not already in one shape or other brought before the reader. We therefore refer to the work for more specific information, as it would inevitably lead into details for which we have no space.

In concluding our account of the researches of Professor Tiedemann, it is almost unnecessary to say any thing, either in the form of eulogy or of criticism. A work founded on inquiries so difficult, and conducted with such unwearied research, requires not the feeble praise of the journal of the day to recommend it to the attention of the philosopher. The substantial value of its contents must be easily recognised in the account which we have already submitted; and if this does not confer the most durable and lasting distinction, we are ignorant what will. The work which we now close marks a great era in the history of anatomy; and if we are not widely mistaken indeed, the information which it contains will make it prized as long as the knowledge of the human frame continues to interest the minds of men. Though not free from imperfections, some of which we have taken the liberty of exposing, it forms the commencement of a train of investigation, the interest and importance of which are unrivalled in the knowledge of the material construction and intellectual constitution of the human frame. Independent of the illustration which the formation and growth of the animal part of our frame thus receives, it is impossible to doubt, that the accurate knowledge of the formation and structure of the brain will, in process of time, shed a clear and steady light on the phenomena of sensation and perception, and will enable the psychological physiologist to perceive where the former ends and the latter begins, and is successively converted into consciousness and memory more distinctly and unequivocally, than any unassisted observation of mental phenomena alone will ever accomplish. The latter study, though indispensable, is still insufficient to effect the purpose of the psychologist; and the knowledge which it furnishes, if it admit of explanation, will most naturally derive it from the knowledge of organization and organic properties combined. Lastly, The sound knowledge of the structure of this organ is the only sun which can dispel the misty twilight of Phrenology, and chase all the unreal phantoms which it has created. It is thus only that we can hope to rescue the study of the human faculties from the gross materialism with which some would attempt to disgrace them, and restore it to its true rank and dignity in scientific pursuit.

II.

1. *Observations on Curvatures of the Spine.* By James Macartney, M. D. M. R. I. A. F. R. S. Professor of Anatomy in the University of Dublin, &c. &c. Dublin, printed by Graisberry and Campbell, 10, Back-Lane. 1817. 4to. pp. 12.
2. *On the Nature and Treatment of the Distortions to which the Spine and the Bones of the Chest are subject. With an Inquiry into the Merits of the several Modes of Practice which have hitherto been followed in the Treatment of Distortions. Illustrated by Plates in Folio.* By John Shaw, Surgeon and Lecturer on Anatomy. London, printed for Longman, Hurst, Rees, Orme, &c. Paternoster-Row. 1822. 8vo. pp. 293.
3. *Engravings, Illustrative of a work on the Nature and Treatment of the Distortions to which the Spine and the Bones of the Chest are subject.* By John Shaw, Surgeon and Lecturer on Anatomy. London. Printed for Longman, & Co. 1824. Folio, pp. 47. Seven plates.
4. *Pathological Observations on the Rotated or Contorted Spine, commonly called Lateral Curvature, deduced from Practice. In which are shown the Causes that produce it; the reason of its being mistaken for an Incurvation of the Spinal Column; and the means best adapted to its Prevention and Cure, agreeably to the principles laid down, and the Author's experience.* By Andrew Dods, M. D. late of Edinburgh, and Surgeon in the Royal Navy. London, printed for T. Cadell in the Strand, and W. Blackwood, Edinburgh. 1824. 8vo. pp. 239.

Personal deformity, whatever be its origin, is a subject on which the human feelings are so strongly and irresistibly interested, that every attempt on the part of the pathologist and surgeon to explain its causes, and counteract their effects, will naturally be received with considerable attention. Those varieties, which depend on changes in the figure, position, and direction of the bones of the vertebral column, are invested with circumstances which render them more strongly than others the object of inquiry to the surgical practitioner. Their connection, in the character of protecting walls, with a great and important part of the central nervous mass, the support which they afford to the whole trunk, to the muscles which move it, and the upper extremities, and the necessity of their healthy position to the functions of the organs of respiration, and of digestion, all combine to render the study of the causes of vertebral deformity an object of very great importance to all orders of the medical profession. The several works, the titles of which are above enumerated, prove, that if readers abound, writers are not wanting; and this number even might be augmented by the addition of some foreign authors. It is our intention, however, to confine ourselves exclusively to those now before us, for two reasons,—first, because most of them treat of the same species of spinal deformity,—and, secondly, this is quite sufficient for present consideration.

The first of these is from the pen of an eminent anatomist, Dr Macartney of Dublin. It is exceedingly short; and perhaps the author has not entered with sufficient minuteness into the pathological causes of spinal distortion, or given the subject that elaborate consideration which his opportunities as an anatomical teacher, would lead his readers to expect. His observations on the effects of different modes of treatment are numerous and judicious.

The second work, by Mr Shaw of London, is a much more elaborate performance, and contains a great deal more information. The author introduces his work with observations on the pathological causes of distortion, in which he considers the effects of inaction, on the nutrition and structure of the animal tissues in general, and of bone and muscle; and afterwards the effects of exercise, in increasing the size and power of the muscles, and augmenting the strength and density of bones. This is succeeded by an inquiry into the causes of the partial palsy and wasting of one of the limbs during infancy, and its influence in producing distortion of the spine. He then proceeds directly to the proper subject of consideration,—that of distortion, commonly called *lateral curvature of the spine.* He enumerates the changes in personal figure and appearance which take place at its commencement, inquires into its immediate causes, and concludes this part of the subject with a particular description of the state of the shoulders and ribs. Mr Shaw then inquires into the merits of the several opinions which have been entertained on the causes of lateral curvature, whether it proceed from irregular action of muscles, from disease of the ligaments, or from dislocation of the vertebræ, or latterly, from disease of the vertebræ. In the three subsequent chapters he illustrates the varieties of distortion, by explanation of the engravings published in the folio work; and in explaining the figures of the fourth engraving, shows that the spine may be distorted to the greatest degree without proof of the existence of rickets; that the pelvis, in such cases, is never affected, and is not liable to be distorted by the use of instruments. The subject is concluded by a section or chapter of observations on the effects of spinal or thoracic distortion on the internal organs. This may be said to terminate the semeiographical and pathological part of Mr Shaw's work. The subsequent part is almost entirely on the treatment of the varieties of spinal distortion, on the merit of the different modes of treatment that have been proposed or practised by surgeons, by bandage-makers and machinists, and by downright quacks. The last part of the volume consists of an Appendix, in which Mr Shaw gives short descriptions of the most conspicuous characters of ninety-four specimens, either of distortion, or of disease, or of injury of the vertebral column, which are preserved in the anatomical collection of Mr Charles Bell.

Such is a general outline of the contents of Mr Shaw's work. Of the merit of these contents we will speak presently, or at least our readers will judge best when we come to enter on the subject more particularly. It is enough now to say, that the volume contains a great deal of information of the most satisfactory kind to the pathologist and practitioner; for it comprehends a very considerable number of facts, and its principles and inferences are never made without the evidence of strong and substantial facts, derived chiefly from the examination of instances of spinal distortion. It is to be regretted, however, that the arrangement of the work is most provokingly defective. Mr Shaw has a decided aversion to the artificial distinction of section, chapter, or subsection, so useful both to author and to reader; and has delivered all his information in the form of independent short essays, which are not in every instance connected with each other in the most obvious way. Had these essays been numbered even, this inconvenience would at least have been diminished. In its present state, it is impossible to tell, without enumerating them, of how many of these essays the volume consists. They are generally preceded by something like a title; but this does not always appear in the same form;—in not a few we find a general aphoristic proposition at the commencement of every essay, the object of which is evidently to adduce the proofs and arguments on which this proposition rests; while in others, one title is fixed at the beginning, and another appears in the table of contents. Notwithstanding all these objections, however, which certainly render it no easy matter to collect all our author's information, and which will undoubtedly render it difficult to consult, we have no hesitation in saying, that it is the best and most instructive work hitherto published on the subject of spinal distortion.

Of the engravings which accompany, or rather which have followed it, it will be perhaps expected that we say something. They consist of seven folio plates, and five etchings in the letter-press pages. The three first plates represent various forms of spinal distortion in one or two instances in the living subject, but chiefly in the skeletons of persons so deformed. The fourth exhibits an instance of distorted chest; the fifth the usual appearances of the adult rickety skeleton. The sixth contains various figures of machines, collars, spine-bandages, and supporting-stays; and the seventh exhibits figures showing the author's manner of preventing and counteracting spinal distortion. As works of art, it is scarcely requisite to express any opinion of the merit of these engravings. They are mostly done by the author, and are creditable specimens of his talents as a delineator.

The third work in our list, by Dr Dods, consists of four general divisions or sections. In the first, the author delivers introductory observations on the *rotated*, or *contorted spine*,—a term which he adopts in preference to *lateral curvature*, to designate that species of deformity in which the vertebral column deviates from its natural direction, not by the antero-posterior bend, or gibbosity, but by a lateral or oblique twist. In the second, he inquires into the causes of this kind of deformity, which he thinks are entirely referable to irregular action of muscles. In the third, he inquires into the manner in which this rotation or contortion of the spine is produced, and explains the reasons which have led to its being mistaken for incurvation of the spinal column. The fourth and last section,—on the prevention and cure of rotated spine, is subdivided into two parts,—the first, on the prevention of this species of deformity in its incipient and unformed state; and the second, on its cure and treatment after it has taken place, and proceeded to some length. In the former, after inquiring into the propriety of various mechanical contrivances employed by persons superintending the education of youth, such as education-chairs, stays, crutches, collars, steel-boddice, backboards, stocks, reclining-beds, and condemning all of them as cruel and useless measures;—he concludes with recommending school-drilling under a drill-sergeant, with proper restrictions, as the most efficacious mode of preserving the symmetry and elegance of the person. In the second part, when the author treats of the cure of the deformity after it has taken place, he again considers the merit of mechanical means, and again reprobates them in strong terms of disapprobation; adverts to the treatment by issues introduced by Mr Pott, but restricts it only to distortion depending on disease of the vertebrae; inquires into the merits of the plan suggested by the late Mr Grant, of carrying weights on the head, and defended by Mr Wilson, and, for at least four reasons, concludes it to be in every case of contorted spine injurious in the extreme; and finally, winds up the whole subject with an account of the practice which he recommends in conformity to his pathological principles,—by friction, manipulation, position and exercise; on each of which subjects he dwells at some length.

We have given this short sketch of the contents of our two most elaborate works, not as an analytical account of the researches or opinions of the authors, but merely to communicate some idea of the subjects treated, and of the order in which they are discussed. A minute abstract of each work, however condensed, would have necessarily led to repetition, and in consequence of the difference of arrangement, to some confusion. We have also refrained from any notice of the comparative merits or defects of the works, because it is not consistent with justice to consider them in a general way. We now proceed to lay before our readers what will be much more advantageous to them, without being injurious to our authors,—an account of the subject itself, as it is substantially treated in their writings, but in a mode of arrangement more suited for perspicuity, as we think, and better adapted for the purpose of enabling them to distinguish the certain and the doubtful points of a practical inquiry, in which very different opinions are entertained by different authorities.

It is probable that the bones of the vertebral column are liable to be deformed or distorted in various modes; and the sources of these kinds of distortion are very different. Some sorts of deformity are known to be coeval with existence, or congenital; others are known to come on a few years after birth; and others have been known to occur after adult age. When, however, they are to be distinguished by the peculiar direction which they take, all the varieties which have been hitherto described may be referred to two; the first, the *antero-posterior or angular curvature;* the second, that termed by Mr Shaw the *lateral curvature*, and by Dr Dods, *Rotated* or *Contorted spine.* In the former, a bend more or less considerable takes place at some individual point of the column;—the upper division is bent or incurvated on the lower; and a convexity more or less considerable takes place on the posterior surface of the column. The process has been termed *incurvation*, the state of the spinal column has been said to be *incurvated*, and the deformity to which it gives rise has been termed *gibbosity*, or popularly *hump-back*. Of the latter form of spinal deformity, it is not quite so easy to give any thing like an accurate or unobjectionable definition. Though both our authors describe the appearances of distorted persons at sufficient length, yet we find no attempt at a definition of the exact nature and kind of deviation from its healthy and natural direction, which the spinal column undergoes. In the absence therefore of such a definition from more able hands, we beg to submit the following, to enable our readers to comprehend distinctly what is meant by the opposite terms of *lateral curvature* and *contorted spine*. The vertebral column is said to be in a state of lateral curvature, when it is so much bent from the mesial plane to the one side, that a vertical plane would not divide it into halves, but would form sections oblique or transverse of several of the individual *vertebrae*. If this definition be compared with examples of skeletons of this peculiar variety of deformity, it is obvious, we conceive, that it will include every possible case in which the vertebral column deviates from its natural direction.

The first variety of spinal deformity occupies very little of the attention of either of our authors; and we therefore cannot say that we enjoy much of the benefit of their instruction. The light in which its consideration is most interesting, is the inquiry of its nature and origin, and what peculiar state of the vertebral bones or their ligaments gives rise to this change of shape. Since the time when Mr Pott published his observations on palsy of the lower limbs, it has been generally understood that its most frequent and common cause was chronic inflammation of one or more of the vertebræ terminating in ulceration. According to the account of this eminent surgeon, "in infants and young children, who had been afflicted with the disorder but a small space of time, the ligaments connecting the vertebræ, which formed the curve (the articular capsules, &c.), were in some degree altered from a natural state, by being somewhat thickened and relaxed, and the bodies of those bones were palpably spread and enlarged in their texture, just as the bones forming the articulations are in children who are called rickety." "In those" again, he adds, "who had long laboured under the distemper, and in whom the symptoms were aggravated, whatever might be their age, the ligaments were still more thickened, relaxed, and altered, the bodies of the bones more spread, more enlarged, and more inclining to become carious, and the cartilages between the bodies of the vertebræ much compressed and lessened in size; and lastly, he concludes, in all those who had so long laboured under the disease as to have been destroyed by it, or by its consequences, that the *corpora vertebrarum* were completely carious, the intervening cartilages totally destroyed, and a quantity of *sanies* lodged between the rotten bones and the membrane investing the spinal marrow."—*Pott's Works, Vol. III. p.* 243.

When we compare this description of the morbid changes which are here incident to the bones and ligamentous tissues of the spine, with the account which the author gives of the deformity or incurvation which results from it, we learn that the morbid process now mentioned certainly produces one species of deformity, but that it is uncertain whether it causes others; and that, undoubtedly, other species of deformity may take place, not from this, but from other causes. To assist us in forming an accurate distinction, it is indispensable to attend to the language which Mr Pott himself uses. Among the circumstances which he has noticed, attending the appearance of this disease, three are particulary remarkable. The first of these is, that none of the strange twists and deviations which many European women get in their shape, however great the deformity might be, ever caused any palsy of the limbs as the disease in question did; the second is, that neither the degree nor extent of the curvature made any change in the degree of the paralytic symptoms; and the third, which is particularly important, is, that the curvature attending this malady is almost always from within outward, and seldom or never on either side.

In the course of his subsequent experience, Mr Pott took occasion to modify several of his pathological opinions. He no longer regarded the loss of power in the limbs as palsy, but as a sort of cataleptic stiffness, arising, as he thought, from spasmodic action of certain muscles, and from inability to move others, by which, during health, their action was antagonized. Though he still continued to consider the disease as a distempered or morbid state of the bones composing the spine, or of the parts by which they are connected, repeated inquiry and examination had convinced him, that the affected bones were *not enlarged and spread*, as he first stated, but *rather eroded* or consumed by *caries*; that the bodies of the vertebræ were invariably affected with this erosion; and that they were affected in many cases in which the ligaments bore but little mark of distemper. Mr Pott further came to the conclusion, that the state of the intervertebral cartilages in this disease was various,—being sometimes totally destroyed while the bones were little affected by caries, and in other cases little injured where caries was considerable and extensive; that in some instances in which the ligaments and cartilages become the seat of disease, without affection of the vertebræ, the whole spine may give way on one side, and form lateral curvature; and that this disease, whether it affects the bones, the ligaments, or the cartilages, or appears in the form of purulent cysts, always depends on the same disposition which gives rise to the symptoms of scrofula. *

Since the days of Pott, this disease has become the subject of investigation to several authors, among others, very shortly after to Dr Jebb, and to Sir James Earle, and more recently to Mr Baynton of Bristol, and Mr Thomas Copeland of London. But to none perhaps are we more indebted for a clear statement of its origin and progess and nature, than to Giovanni Baptista Palletta, late Professor of Anatomy and Surgery in Milan, and to G. B. Monteggia of the same city, the learned author of one of the most comprehensive systems of surgery that has appeared in modern times. Palletta informs us,—that "in the commencement of the disease, the ligaments of the vertebræ become thicker and more lax, the bodies of the vertebræ scarcely swell, the intervertebral cartilages are compressed and softened; in short, as the evil increases, such loss of these parts takes place, that the cartilages and ligaments being destroyed, the bodies of the vertebræ are found more or less consumed, and the column gradually becomes gibbous. The ligamentous band which connects the bodies of the vertebræ, is distended into a sac by the contained matter, which may be sanious, or thick like suet or cheese, with scales of wasted bone floating in it. This disease often affects several vertebræ at once, and spreads to the ribs, the heads of which have been repeatedly found corroded, and detached from the vertebræ." † All or most of these evils, Palletta justly ascribes to inflammation, either attended with manifest signs, or latent and insidious—whatever be the remote cause; and declares, that he has been so much confirmed in this opinion by recent examples of the disease, that he felt himself compelled now to retract in the most solemn manner whatever he had previously asserted to the contrary.

We learn from Monteggia, who had examined with Palletta several instances of this disease, that they found the same changes as Pott did, in the substance of the vertebræ, and in the intervertebral cartilages; and Monteggia justly remarks, that the knowledge

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* Further remarks on the useless state of the lower limbs, in consequence of a curvature of the spine, &c. in Pott's Works, Vol. III. p. 287, &c.

† Exercitationes Pathologicæ Auctore Joanne Baptista Palletta, Equite a Corona Ferrea Honorisque Legione Mediolari, 1820. Cap. IX. Artic. II. de Tubercules Spinæ.

of these changes explains the deformity (*cyphosis*), which succeeds in a satisfactory manner. " As the bodies of one or more vertebræ, " says Monteggia, " or several intermediate cartilages, are wasted, the upper contiguous vertebra, being deprived of support, is forced to fall downward, and to sink into the space. left by the wasted bones. Hence the spine is bent forwards, and the spinous processes of the annular portion, which the disease has not yet reached, are proportionally elevated. The seat of the wasted vertebræ is then observed to be covered anteriorly by a tumour formed by the distension of the anterior ligamentous covering of the bodies of the vertebræ, under which is found a thick white pulpy mass, which fills up the vacuity of the osseous destruction. In short, this vertebral tumour is very similar to an atheroma or steatoma. And as the *cyphosis* of Pott is often on the back, so the internal tumour on the bodies of the vertebræ is often accompanied with analogous tubercles on the posterior part of the pleura and lungs."—*Istituzione Chirurgiche*, *Vol. V. p.* 226–466.

Inflammation of the vertebræ or vertebral fibrocartilages, and consequent ulceration, is however only one cause of the antero-posterior deformity. The morbid changes, which are thus induced in the bones and their connecting tissues, give rise to incurvation; but they also produce palsy or cataleptic rigidity of the lower extremities. Two questions are here naturally suggested; first, Can this disease take place to any extent without being followed by palsy—without affecting the spinal chord or the nerves which issue from it below the seat of disorganization? and, secondly, What is the particular description of cases in which this incurvation takes place without affecting the motions of the limbs; what changes are induced in the bones, or their connecting ligaments, sufficient to cause incurvation, without at the same time affecting the spinal chord or its nervous productions?

On the first of these points there is evidence to believe that a certain degree of the morbid action may occur sufficient to cause incurvation, yet without affecting the muscles of the limbs. Monteggia informs us, that he had met with examples of Pott's disease, (chronic inflammation of the vertebræ), in which the morbid process was so far advanced that the usual remedies could not, or did not act on it; yet the patients began to improve of themselves, acquired distinct strength in their limbs, and began to walk with, or even without crutches,—which they could not previously do. This improvement he ascribes to the circumstance of the disease becoming after a certain time stationary, to the probable solution of the swelling, the absorption of the pultaceous matter, and the cessation of what he calls the *ossivorous* action. Benjamin Bell observed a similar instance of the spontaneous disappearance of palsy, and ascribes it to the disease extending over a greater number of bones, whence Monteggia thinks the spine would form a bend less acute and less injurious to its nervous chord. Hull also records an example of a paraplegic case, in which the palsy disappeared as the gibbosity or hump increased in size, when it included a greater number of vertebræ, and made an angle less acute. These facts, which might be increased considerably by more extended research, show that incurvation, arising from vertebral disease, may take place without permanent palsy, and consequently without permanent injury to the spinal chord. It is indeed not difficult to conceive this disease taking place so slowly, and being at the same time so completely confined to the bodies of the vertebræ and the intervertebral cartilages, that the incurvature shall not be either so sudden, or so abrupt and angular as to injure the chord. It appears from the results of many cases, that the sudden or rapid progress of the disease, and the rapid incurvation which succeeds it, is the great cause of injury to the chord sufficient to induce palsy.

But although we have adduced these authorities with caution, and without speaking confidently on a point in which we are desirous to convince our readers by proofs which, though undoubted, are presented to their understanding deliberately, this conclusion, which we have now stated, does by no means rest on uncertain ground. One of the first cases of chronic inflammation of the vertebrae terminating in ulceration which we witnessed, was an example in which two dorsal and one lumbar vertebrae were affected to such an extent as to diminish the stature of the individual considerably, and to cause a distinct incurvation of the spine and projection of the back; yet the motions of the legs were not impaired farther than by general weakness. Since that period, we have remarked the same disease more than once without the effect of paralyzing the limbs; and particularly in one case of lumbar abscess, the bones were much injured, and incurvation was considerable ere palsy came on, which was only a few days before death. We state these results of our own observation and experience, not because we believe them to be singular, but because they are most accessible, and were the first which led us to doubt the justice with which Pott generalized his inference on the vertebral disease being uniformly attended with *paraplegia*. We have no doubt that many similar instances have fallen under the notice of our surgical friends of any standing in the profession. But if further evidence on the question were requisite, we have much pleasure in giving the following from an anatomical inquirer like Mr Shaw.

" No. 49. is a specimen of the carious state of the vertebræ, which precedes the destruction of their bodies, and the consequent yielding to the superincumbent weight.

" While the disease is (as in the case from which this was taken) only commencing, there is generally paralysis of the legs. This is probably in consequence of the inflammation of the bone affecting the spinal marrow ; as many facts could be adduced to show, that the idea generally received, of pressure on the spinal marrow being the cause of paralysis in such cases, is erroneous. A specimen, preserved in the museum of St Bartholomew's Hospital, is particularly interesting, as having been taken from a patient who had been kept for some time in the Hospital by Mr Pott, as an example of the good effects of the caustic issues upon caries of the spine with curvature. Although the patient had been cured of paralysis, and was able to walk for some time preceding his death, yet it was found, upon dissection, that the spinal marrow had actually been diminished in size by the growth of the parts in the interior of the canal.

" Since the death of Dr Baillie, some drawings, which were found among his papers, have been sent to me. Besides the value which I naturally place upon these drawings as a gift, I consider them highly important, as they afford the best evidence on the present question.

" One of them represents a spine more distorted than that given in the sixth figure of the first plate. The canal for the spinal marrow, is at one part so much encroached upon by the projection of the bodies of the vertebræ, that it is scarcely half its natural size ; the spinal marrow consequently appears compressed or diminished.

" The patient, from whom this was taken, had been attended by Dr Hunter, who used to say, that had he not carefully watched every symptom of the disease, he should have thought, from the state of the preparation, that all the parts below the point where the canal was diminished, must have been paralyzed. The circumstance of there having been no paralysis, is proved beyond a doubt, by a note on the drawing, in Dr Baillie's handwriting :—" Miss Smith, aged 12. The incurvation began about four years of age. No palsy to the last. "

" These preparations prove that the spinal marrow, like the brain, does not suffer much from a certain degree of pressure, if it is not accompanied with inflammation. The numerous instances in which there is paralysis, although there is no pressure upon the spinal marrow, and the above examples of the existence of a certain degree of pressure, without consequent paralysis, afford a satisfactory answer to the severe critique upon Mr Pott, that is contained in a work published a few years ago. The author of the work alluded to, seems to consider all the symptoms of paralysis, consequent upon diseases of the spine, as always referable to pressure on the spinal marrow.

"In the next volume I shall enter more into this inquiry; but as an opinion prevails, that pressure on the spinal marrow is the cause of the paralysis which is consequent on disease of the vertebræ and injury of the spine, these remarks have been made in the hope of exciting others to the inquiry." pp. 279–282.

On the information here communicated, we have merely to remark, that it is of no consequence to the question, whether the palsy is caused by pressure, or by inflammation. The chief point is the existence of the disease, and the attendant deformity without palsy of the limbs; and this, we conceive, is unequivocally established. Inflammation existing in nervous parts does eventually compress,—in general by the products or new formations to which it gives birth; and it will depend on the extent to which this compression is carried, and on the rapidity with which it takes place, whether the organization shall be so far impaired as to suspend the functions of the parts, to which it ministers.

On the second question, the information of most authors is vague and unsatisfactory,—consisting rather of specious *a priori* views, than of conclusions derived from actual examination of instances of incurvated spinal column. It is by all agreed that rickets may be a cause of this deformity; but it is again stated, that when this is the case, the scull, the pelvis, and the cylindrical bones, in general partake more or less of the same deformity. The inquiry, then, is reduced to this;—Are there any states of the vertebræ, exclusive of the rickety condition, which would cause the antero-posterior incurvation of the spinal column? First, says Portal, external causes, as swathing of children, whalebone stays, vicious positions of the trunk and extremities, frequently occasion inflexions of the spine. (*Anatomie Medicale*, I. p. 300). Next, says Boyer, through Richerand, the young person who is near-sighted, bears the head unusually bent; the vertebral column is bent forwards; and, unless the habit is corrected, the bones harden in this unnatural position, and the neck and head are unnaturally bent forwards. The same thing may happen to the dorsal or lumbar portion of the vertebral column with delicate young persons, by rapid elongation of the column during a tedious illness. The extensor muscles of the trunk too much weakened, are unable to keep it in the erect position; and hence it falls forwards by the combined weight of the head, the thoracic and abdominal organs. The opinion of Monteggia is much to the same effect. The different incurvations of the spine, says he, are the consequence either of bad habits and attitudes, or of weakness, particularly in delicate young persons, when they grow rapidly after a long disease, or of the rachitic vice, which is most ordinary, and sometimes scrofulous, venereal, rheumatic, or other vice capable of injuring the vertebrae. Early life is a predisposing circumstance, and young girls are more exposed to these deformities than boys; yet Pouteau, Richter and Morgagni saw persons become hump-backed in mature age. It is farther known, that decrepitude causes incurvation, in addition to what is elsewhere said on *softening of the bones, (malacostea)* and on violent lesions capable of changing its figure at any age. Hump-back is also hereditary. Lastly, Baron Boyer, in his own character, expresses his opinion of the etiology of incurvation to the same effect. Labour requiring constant stooping, the habit of bearing heavy burdens on the head or shoulders, early life with delicate structure and a bad habit, or spasmodic contraction of the muscles, and old age with debility,—all tend, at any age, to bend the vertebral column and cause deformity.

These statements on the causes of incurvation, which we purposely take from some of the first authorities in surgery, prove incontestably one thing, that the most vague whims are entertained on the subject, and that scarcely one precise or unequivocal cause adequate to account for the effect is assigned. It cannot, with any justice, be said, we conceive, that either swathing, bandages, or stays, or the habit of bending forwards or stooping, are sufficient to cause the marked degree of deformity which is often perceived in the vertebral column. We do not refuse these circumstances some little influence; but it must be small indeed, and, our own experience would say, merely accessory. There must still be some primary and essential cause, the operation of which is general, and more uniform than either of those assigned above. We are unwilling to deviate from our plan of recording facts and the inferences to which they lead; and in the absence, therefore, of well-authenticated cases of spinal incurvation, unconnected with rachitic disease, or vertebral ulceration, it is not our purpose to indulge in conjecture or supposition. There are, however, two points to which it is material to attend, and with the knowledge of which, it does not require great stretch of belief to think, that antero-posterior incurvation may take place without absolute ulceration of the vertebrae. 1*st*, It is certain that those parts of the skeleton which consist of what is termed spongy osseous texture, such as forms the short bones in general, and the extremities of the cylindrical bones, are, in many persons, very slowly converted into complete firm bone. This slow ossification is particularly common in young persons of slender frame and delicate structure; and it is generally in such subjects that incurvation takes place. 2*d*, It is also to be remarked, that in the same kind of subjects the union or consolidation of the component parts of each *vertebra* is not unfrequently very late. The articular processes are often for years separable from the bodies of these bones, and, in the same manner, the spinous processes are sometimes imperfectly ossified, and their plates not united to each other. We do not submit this either as a piece of theory, or as a certain mode of explaining all cases of incurvation. It is a matter of fact in the formation and growth of the skeleton, and does not apply to all, but only to persons of a particular structure and organization. Whether it has any real influence in the production of spinal deformity, we leave to be determined by those to whom frequent opportunities occur.

Of the antero-posterior incurvation in which the gibbosity is anterior, and the depression behind, it is unnecessary to take any particular notice. Its explanation, unless when it is occasioned by injury or violence,—a frequent occurrence, depends on the same principle as that of which we have now been speaking.

On all these points, we are led to expect, from what Mr Shaw says in several parts of his work, but especially at the 19th page of his Engravings, important and satisfactory information in a second volume, which it is his intention to publish.

The second mode in which the spine may be bent from its natural direction, constitutes what systematic authors have named *scoliosis*, *tortuosity*, or twisting,—a term which appears to have been used by Hippocrates, to express every species of deviation. It is this species of deformity which is the subject of inquiry, under the name of *lateral curvature*, to Mr Shaw, and of *contorted spine*, to Dr Dods. The changes which it induces on the personal figure and appearance, are thus described by Mr Shaw.

"When the spine of a girl, about the age of fourteen, is becoming crooked, the attention of the mother or governess is at first directed to the state of the shoulders or breasts. At this age, it is most frequently to the latter; one either appearing larger than the other, or growing so unequally as to lead to a suspicion that it is diseased. But in a younger girl, the state of the right shoulder generally attracts attention, as it appears larger than the left, and when the distance of the two shoulder-blades from the spine is compared, it is found to be farther removed than the other; or is, as often said, "*growing out.*" It may perhaps also be noted, that the left hip is different from the right.

" If the spine (which has probably been overlooked by the mother) be now examined, it will be found to be curved nearly in the form of the italic *f*. The whole of the right side will also have acquired a rounded and barrel-like form, while the left is diminished and contracted, the ribs being closer together than is natural. There is, moreover, a sinking in, or depression of the right, and a corresponding fulness of the left loin.

This description nearly corresponds with the sketch of the girl's figure in the second plate given in illustration of the effects produced by a slight lateral distortion of the spine. The second figure in the same plate will assist us in forming a correct idea of the causes of the above changes in the form; for it will at once be evident, that the size of the right shoulder, the swelling of the same side of the neck, and the increased distance of the tip of the shoulder from the head, do not depend on any enlargement of the scapula or muscles of the shoulder, but on the change in the relative position of the ribs. It will also be obvious, that the appearance of the left hip being *out*, is caused by the left ilium being more elevated than the right, which is a consequence of the weight of the body being sustained principally by the right leg. The cause of the barrel-like form of the right side of the chest, and the contracted state of the left, is also obvious; and it is easy to comprehend how the projecting transverse processes of the lumbar vertebræ may give the appearance of fulness to the lower part of the same side. The sketch is so demonstrative that it is scarcely necessary to add, that these changes depend in a great measure on the condition of the spine. This kind of distortion is further described in the explanation of the plate."—*Shaw*, pp. 48–50.

This plate contains representations of two objects, a back view of the figure of a person in this variety of distortion, and a similar view of a skeleton to illustrate, or rather demonstrate the change of direction which the bones of the spine and of the chest have already received. In the former figure, the right shoulder is shown to be broader and higher than the left; the upper part of the right side is convex, prominent, and rounded, while the left is compressed and contracted. In the second figure, these changes are explained. The expanded or convex form of the ribs on the right side, is a consequence of their rising from the convexity of the curve; while those of the left, which are attached to its concavity, are depressed. The shoulder-blades are also at unequal distances from the vertebral column, that of the right side being nearly double the distance of the left.

" The demonstration afforded by the figures of this plate," continues Mr Shaw, " makes it almost unnecessary to repeat, that the cause of the " large and high shoulder," on the right side, and of the hip being out on the left, is not in any change that has taken place on the bones of the shoulder, or of the hip, but in the curvature of the spine. The sketches not only prove this, but that the enlargement of the upper part of the right side, depends on the manner in which the ribs project from the convexity of the curve, while the fulness in the left loin is in a great measure formed by the projection and twisting round of the transverse processes of the lumbar vertebræ. The sinking in of the right loin, and the straightness of the line from the left *axilla* to the left hip, are not very distinctly marked here; but the causes on which these changes depend are sufficiently obvious."

After first showing, that, by merely twisting the pelvis of a person whose spine is straight, one leg may be made to appear longer than the other, he proceeds to say, that 'when the spine is distorted, while the individual stands on the left foot, the right leg will appear shorter than the left.'—"That the apparent shortening of the right leg depends on the curve at the loins altering the position of the pelvis, may be demonstrated in two ways. If the patient be laid on the movable plane, and the shoulders fixed, the curve at the loins may be made straight by pulling upon the lower board. Both legs will then appear of the same length; but if the patient be laid on the carpet, and the curve at the loins increased by pushing the pelvis toward the shoulders, one leg will appear much shorter than the other."

These observations on the changes in the personal shape apply more particularly to one degree of lateral curvature, when it is yet slight, and in its early stage. As it advances, it gives rise to more conspicuous changes, which Mr Shaw has enumerated in a subsequent section of the octavo volume, and which should be diligently studied by all who make the treatment of distortion an object of attention. These changes, like the curvature from which they proceed, are in various degree, and different in kind, at the several periods of the change in the direction of the vertebral column. 1*st*, In such cases as that represented in the engraving, which may be accounted the first degree, the right shoulder and breast will probably be larger and more prominent than the left. 2*d*, If this degree of curvature increase, which may be supposed to constitute a second degree of the change, though the right shoulder continues large and round, the breast of the same side may be flat and contracted, in consequence of the ribs being flattened in front. In some instances, too, it will be observed, that the breast and upper part of the neck on the *left side* are prominent, while the same parts on the right side are lower, though the shoulder-blade is more prominent than the left. 3. In a more advanced state of curvature, a complete change of form takes place, which Mr Shaw has described in his explanation of the second and third figures of the third plate in the following manner.

"The lumbar vertebræ are scarcely affected, the distortion having fallen almost entirely upon the dorsal, and consequently very much on the ribs. We can easily imagine how much more deformed a person appears with the spine in this condition, than when it is of a serpentine form; for the figure is tall, the difference in the size of the shoulders is very great, and the head, instead of being nearly perpendicular to the pelvis, is directed to one side. On examining the condition of the bones in this example, there can be little doubt of the distortion having been originally similar to that in the upper part of a spine affected with the common lateral distortion. We may therefore suppose, that, at first, the right side was more capacious than the left; but now it is evident that the area of the right side is much diminished. It is highly important to attend to this; for although it may be the consequence of the natural progress of the distortion, still it may also be produced by the misapplication of instruments which have been used with the intention of pushing in the projecting shoulder. It is easy to demonstrate, that the application of an instrument with this intent not only diminishes the area of the chest, but increases the distortion; for the shoulder is pressed against the flat part of the ribs, and consequently the unnatural angle, which, even in cases of slight distortion is to a certain degree formed in the ribs, is increased."—*Shaw*, pp. 119, 120.

We believe we have already dwelt sufficiently on the changes induced in personal figure by spinal curvature. We must now proceed to notice the causes to which it has been ascribed by various authors. Mr Shaw, in discussing the merit of the several opinions which have been entertained on this subject, restricts his examination to three, 1. Irregular action of muscles; 2. Disease of the ligaments, with dislocation of the vertebræ; and, 3. Dislocation of the vertebræ.

1. It is remarkable that Morgagni was disposed to think, that the lateral inclination of the spine arose from weakness or palsy at the part opposite the vitious inclination, in consequence of which it was dragged by the strongest side. To this opinion, Monteggia justly remarks, it was an obvious objection, that no proofs of such lateral palsy existed. The hypothesis, however, of irregular muscular action, being the cause of spinal distortion, has been espoused in one shape or another by many practitioners. It is common in Germany. Baron Boyer, in his recent System of Surgery, speaks of the spasmodic action of the muscles causing distortion; and the opinion has been rapidly gaining ground in London, and other places of this Island. Dr Macartney, for example, expressly says, that "the third cause of distorted spine is the feebleness

of those muscles which are employed in maintaining the erect position of the body. The tendency of a weakened state of the muscles to augment the more serious kinds of curvature, and to induce, even without a softened condition of the bones, an evident distortion of the back, does not appear to have yet received sufficient consideration, either from medical men, or from those whose interest it is early to notice and prevent deformity in young people."—*Macartney*, p. 2.

The most zealous advocate for this opinion in modern times is unquestionably Dr Dods, who, in the Treatise before us, loses no opportunity of inculcating strenuously, that the muscles are the sole agents of evil, in producing contortion or rotation of the spine. We do not say that Dr Dods is either a very able or a very conclusive reasoner on this subject; for he is one of those practical authors with whom the world at this moment abounds, who can write and declaim about the natural beauty and symmetry of the human body, and execrate the wickedness of those persons who have introduced all the cruel refinements of what is termed a polite and accomplished education. After following him over many flowery pages and fascinating digressions on the popular topics of education, school-drilling, training of young ladies to a genteel carriage, catching little rustics, as he terms them, and bringing them into shape in boarding-schools, we at length tracked him to the following passage.

" The muscles I allude to are what are generally called *the long extensors of the back*, viz. the *the sacro-lumbalis* and *longissimus dorsi*, with the *quadratus lumborum*. It is evident, then, that as these muscles are inserted into transverse levers, they become muscles of rotation as well as extension. For example, if the extensor muscles on both sides of the spine be thrown into equal action at the same moment, the motion produced will be direct extension of the column; but, if they be thrown into action only on one side, the spine, although made to incline in the direction of the muscles' forces to that side, will be moved by means of the rotatory movement of the vertebræ.

" If the extensors of the spine, then, from being inserted into transverse levers (the transverse processes of the vertebræ), be constituted muscles of rotation, when they act on one side only, it will follow, that should disorganization, producing contraction, take place in those of one side, the effect of this contraction, by its overbalancing the action of their fellows on the opposite side, will be to rotate the vertebræ to which they are attached, and destined to move; and, consequently, to produce rotation or contortion of the column, and not curvature."—*Dods*, pp. 86–88.

These observations, however, which the author with equal truth and modesty calls *cursory*, are merely preliminary to the proper subject of inquiry and exposition. Dr Dods first reminds his reader of the difficulty of enforcing the obedience of children, and training them in the way they should walk; the anxiety of fond mothers to have elegant and handsome daughters, and the natural emulation of the young ladies themselves; then shows what sacrifices they will make, and to what restraints they will submit to ensure a good figure; and concludes by stating, that the effect of this restraint is to disorganize the muscles, and render them contracted, and so terminate in contortion of the spine.

"In this contracted condition they remain day after day, and night after night (for it may be observed, that their beds are now made to keep the body extended as much as possible), until the extensor muscles, by this constant action, get disorganized and become contracted; and as the stress more particularly falls upon the muscles of one side of the spine, as shall be presently shown, so it is that they chiefly suffer this disorganization, and produce the contortion.

"The right arm is that which is generally made use of; and if any one will observe where the force falls when we handle or do any thing with it, he will find it to be on the muscles of the left side of body, and more particularly on those of the loins and long extensors of the back."

"If the greater forces then exerted by our right arm fall particularly upon the muscles of the left side of the spine, so likewise will the lesser ones; consequently, it is the muscles of that side which we find most frequently to suffer disorganization, and become contracted, owing to the cause of this disorganization being greater in them than in those of the opposite side, and is the reason why contortion is so often to the right side.

"The muscles then of the left side of the spine being, from the causes above mentioned, those which suffer disorganization in particular, and more especially the *quadratus lumborum*, *sacro-lumbalis*, and *longissimus dorsi*, they, by the force of their diseased contraction overcoming the action of the muscles of the right side, rotate the vertebræ to which they are attached, because of the angles formed relatively between the vertebræ and the pelvis (the points of origin and insertion of these muscles), and the force of their contraction acting upon moveable horizontal or transverse levers, namely, the transverse processes of the vertebræ."—*Dods*, pp. 92, 93.

From these principles, which the author conceives to be unquestionable, he concludes, that though the rotatory motion of each vertebra is limited and trifling, their multiplied effect is considerable; and so twists or contorts the whole column, as to give its natural flexures a lateral turn, and thus make it be thought to have the same number of curvatures.

Such may be said to be the mode in which Dr Dods accounts for lateral curvature of the vertebral column; or, in other words, the theory of Dr Dods is, that the column, instead of being allowed to follow its usual, if not its natural direction and curvatures, is compelled by the inordinate action of certain muscles, to make these bends or curvatures laterally. Perhaps our readers may feel some interest in knowing by what course of observation, or by what process of reasoning, Dr Dods was led to adopt a theory, in which, it must be granted, there is something plausible and specious. As we are unwilling to allow his arguments to suffer by our mode of statement, the author shall speak in his own person.

"Having been induced, of late years, to apply myself more particularly to the investigation of this interesting deformity, and being previously convinced that it depended more upon muscular contraction, brought on by the fashionable modes and customs of the day, than upon structural disease of the vertebræ, I was led to the adoption of friction for its cure: and in order that I might give it the fairest trial possible, I was induced to become the operator myself.

"During the course of my operations upon several patients, I was struck, in all of them who were contorted to the right side, with a considerable bony hardness and projection on the left side of the loins, raised nearly to a level with the spinous processes; and this I found to be the case in the patients whose spine exhibited little or no apparent curvature in the loins, as well as in those in whom the apparent curvature was very great. Being led to investigate this anomaly, I redoubled my exertions to discover the cause; and I found, after the muscles had been relaxed by friction (for they were in every case extremely rigid), that the bony projection was the transverse processes of the vertebræ of the loins, which I could now as distinctly feel and count as the spinous. From this circumstance, I was led to examine whether I could feel the transverse processes of the same vertebræ on the opposite side; but without effect, for they appeared to have sunk inwards, completely out of reach. Having satisfied myself of these facts, I then reasoned in the following manner.

"If these distortions of the spine, as it is generally supposed, depended upon a direct lateral curvature of the column, the transverse processes, although they would be, in this case, separated from each other on the one side, and approximated on the other, yet would they not be altered in their transversity, with respect to the body, and consequently ought to be as easily discovered and felt on the right side as on the left, but which I found was not the case. I then asked myself what movement of the vertebræ would bring their transverse processes to be so prominent, and so distinctly felt on the one side, while they were totally out of reach on the other, and I concluded it must be their ROTATION.

"Being satisfied that this movement had taken place in the vertebræ of the loins, I suspected that the same had occurred to those of the back; but as I had no transverse processes here to guide me, similar to what I had in the loins, because of their attachment to the ribs, I was obliged to confine my examination to the spinous processes, which I found evidently to lie obliquely over to the right side, in contact nearly with the ribs, which were raised up in an opposite direction.

"Being now convinced, also, that the vertebræ of the back were rotated like those of the loins, I concluded that those of the neck had undergone a similar change; and, therefore, that the whole column was spirally twisted, and exhibited to me the profile of its natural flexures.

"Although satisfied in my own mind, from my examinations, that such a movement of the whole vertebræ was possible, and had actually taken place, yet I found that a more certain proof of it was needed. I therefore, as the best mode of affording this, had recourse to the rotatory motion of the head; reasoning thus:—

"If the whole spinal column be spirally twisted by the aggregate rotatory movement of the vertebræ, the rotation of the head on its axis will prove the fact. For, as the head is equally limited in its rotation to both sides of the body, and as the spinal column is the pivot on which it turns, so will it be increased to the one side, and diminished to the other, relative to the trunk of the body, exactly in proportion to the extent of rotation of the column, if such shall exist.

"My reasoning in this case, I found, was correct: for, on making my patients, in whom the whole vertebræ of the column had moved round, rotate the head while in the erect position, I found that they could carry it, in this motion, considerably more to the left side than to the right, which was exactly what I conceived would happen. To satisfy myself still farther, as to the reality of this circumstance, I caused one of my patients, whose spine I considered to be more rotated than the rest, to lie down upon her back on the floor, and in this position to try the same experiment, and I found that she could touch the rug on which she lay quite easily with the left cheek, while she could do so with the right, by more than three inches. This experiment I did not consider so certainly conclusive as the first; for I thought the projection of the right ribs behind might have some share in causing such a difference, although I had no reason to suppose that it could be influenced much by it. The same experiment I made with my other patients, whose spines were similarly rotated, and the result in all of them was the same, but in a lesser degree, for neither of them were so much twisted as the one before mentioned; which completely convinced me that the complaint is not CURVATURE, but ROTATION *alias* CONTORTION."—*Dods*, pp. 100–105.

Now, though it cannot be denied that muscular action, more particularly if it be inordinate or irregular, changes the position and modifies the figure of bones, we are of opinion that many more conditions are requisite than Dr Dods has admitted, to establish the theory which he has here delivered. Distortion cannot be produced without muscular action, but other causes are requisite at the same time to accomplish the effect; and as Mr Shaw has stated, 'it cannot alone be the cause of common lateral curvature of the spine.'

" The principal muscles," continues Mr Shaw, " which support the spine in its natural position, are in two great masses, which pass from the pelvis to the head. Although these have been divided, in an arbitrary manner, by anatomists, into many distinct muscles, still the several divisions are admitted to have nearly the same action, viz. that of supporting and giving motion to the spinal column. But, to avoid the objections that may be made to arguments founded on considering the muscles on each side of the spine as forming only one great muscle, I shall confine my observations to the condition of the *sacro lumbalis* and *longissimus dorsi*, in the common cases of distortion.

" As the part of the spine between the origins and insertions of these muscles, is almost invariably curved in two opposite directions, before we can agree in the opinion that lateral distortion depends on the irregular action of the muscles, we must believe that the lower portion of the muscle on the one side, may be in forcible and unnatural action, while its upper part is relaxed; and that in the muscle of the other side, the reverse takes place. But this cannot be admitted; and indeed the more the theory is inquired into, the more erroneous it will be found to be. If the distortion depended on an undue action of the muscles of one side of the spine over those of the other, the curve would be always in the form of a single arch, instead of its being of a serpentine shape, as it generally is, between the points from which the muscles arise and those into which they are inserted. It has been stated, by way of argument in favour of the opinion, that the muscles on the concave side of the curve are stronger than those of the other; but I suspect that this statement is not founded on proofs derived from an examination of the muscles in the dead body, for I have found those on the convex side to be the largest. Indeed, there is one circumstance in the condition of the nerves of a distorted spine which would induce us to believe that the muscles on the concave side would be even more deficient in energy than those on the convex side; for the nerves which pass to them, are diminished to less than one half their natural size."—*Shaw*, pp. 66–68.

Dr Dods appears entirely to overlook the circumstance, that his theory supposes the muscles of one side to be greatly stronger than those of the other; yet he neither proves that this is the fact, nor even advances any arguments to show that it must be so. The disorganization, of which he speaks, if it actually was the consequence of the system of training and bandaging so feelingly described by him, must have been nearly uniform in every muscle of the parts subjected to unnatural constriction. Yet it is certain that this disorganization is not so extensive; and we must be permitted to doubt, whether any disorganization of the kind could take place without effects much more immediate, much more distinct, and much more formidable, than those which are generally seen after a short training to the habits and attitudes of a young-ladies' boarding-school.

But even these objections, which must be obvious to many, are not the strongest to the theory now advanced. Dr Dods seems to go entirely on the supposition, that his disease of contortion or rotation, is confined entirely to young ladies or delicate boys, whose persons are moulded to the fashion of the boarding-school machinery. Now, this might be true enough, providing lateral curvature occurred in no other persons than in those thus reared. But it is well known that this deformity takes place in many persons ere they have been subjected to this system of restraint, in not a few who never knew what it was, and that it was incident to the human spine before such mechanical means were contrived to counteract it. These objections are convincing proofs that the muscles, or their irregular action, are not the sole cause of lateral distortion, and are, as in all other cases of distorted bones, merely accessary to some peculiar condition of the bones, which allows them to be twisted in an unnatural direction. We will not deny, however, that Dr Dods may be right in the view which he has taken of one or two instances which have fallen under his notice, and that his *muscular* hypothesis will explain such slight cases as those of which he speaks. His whole train of reasoning is indeed moulded in the most cautious and circumspect manner, and thus presents an air of plausibility which makes it appear to be established on solid grounds. Our readers may perceive, that he goes entirely on the principle of the spine being twisted, or its individual bones slightly turned round only; and not bent or incurvated, as others generally think. It is not contortion, or curvature, but *rotation*, that constitutes the deformity of which Dr Dods speaks; and to this he makes his hypothesis correspond with considerable dexterity, and some accuracy. But the correspondence extends no further. The hypothesis of our author will no more explain the cases of distortion represented and described by Mr Shaw, than it will account for the growth of giants, or the eruptions of Mount Etna. The agent to which Dr Dods ascribes such effects, is unquestionably powerful; but neither of itself, nor in the manner described by him, is it adequate to produce all the varieties of distorted vertebræ which are presented to daily observation. The hypothesis is in short of partial application only.

2. The second opinion, the merit of which is examined by Mr Shaw, is that which ascribes lateral curvature to disease of the ligaments. We know not whether those who maintain this opinion are aware that it was originally proposed by Ambrose Paré, to account for all spinal deformities. "Now that ligament wherewith we said the joints of the *vertebræ* were mutually knit and fastened, is encompassed with a tough and glutinous humour for the freer motion of the vertebræ. Sometimes another cold, crude, gross and viscid humour, confused and mixed herewith by great defluxions and catarrhs, begets a tumour, which doth not only distend the nerves proceeding forth of the holes of the *vertebræ*, but also distends the ligaments wherewith they are bound together: which so distended, and, as it were, drawn aside, do draw together with them the vertebræ, one while towards the right side, another while to the left, sometimes inwards, otherwhiles outwards, and thus move them out of their seats and dislocate them. A dislocated *vertebra* standing forth and making a bunch, is termed in Greek *Cyphosis*; those thus affected we may call Bunch-backed. But when it is depressed, it is named *Lordosis*; such we may name *Saddle-backed*; but when the same is hexated to the right or left side, it makes a *Scoliosis* or crookedness, which wresting the spine, draws it into the similitude of this letter *S*." *

A modification of the same opinion is given, first by Henry Bacheracht, in his inaugural dissertation published at London in 1750, afterwards by Pott, as we have before stated, and more recently by Monteggia, whose work we have already had occasion to mention with respect. The opinion of Pott is expressed in the following terms. "When the ligaments and cartilages of the spine become the seat of the disorder, without any affection of the vertebræ, it sometimes happens that the whole spine, from the lowest vertebræ of the neck downwards, gives way laterally, forming sometimes one great curve to one side, and sometimes a more irregular figure, producing general crookedness and deformity of the whole trunk of the body, attended with many marks of ill health." † On this passage we have only to remark, that Pott would not have expressed himself so confidently, without sufficient evidence for the truth of his opinion. "In the skeletons of the hump-back (gobbi)," says the Italian author, "the intervertebral cartilages, and the bodies of the vertebræ, are observed to be compressed and diminished at the angle of the bend;—which crushing may be as much the cause as the effect of the morbid incurvation. Let the height of the bodies in the cartilages of several vertebræ be supposed by any accident to be diminished, this will cause a greater approximation of the pieces composing the spine, an incurvation before and of the sides, according to the seat of the parts crushed together. But this same compression may be a result of the weakness of the muscles, and posterior or lateral ligaments of the spine, by which it is made to fall forwards or laterally; and, in consequence of this fall, the bodies of the intermediate *vertebræ*, and the respective cartilages, will be found unusually compressed and trodden." (459, Vol. V.) According to this view, the author explains not only lateral, but antero-posterior incurvation in some cases by an affection of the intervertebral cartilages, the lateral and posterior ligaments, and even the bodies of the vertebræ. While the author is inclined to regard the changes from which he draws these inferences as the cause of incurvation, it is to be regretted that he had not taken some means of ascertaining, whether they were not effects of another cause.

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* The Works of the famous Chirurgeon, Ambrose Parey, translated by Th. Johnson. Lond. 1678. Book XVI. chap. 17.

† Further Observations on the Palsy of the Lower Limbs, p. 288.

Every opinion has its advocate; and the advocate of this is Dr Harrison, who some time ago ascribed all the changes in the direction of the vertebral column, to relaxation and preternatural elongation of the lateral and posterior ligaments, and consequent displacement of the vertebræ in the usual motions of the trunk and spine. We have not space to enter into a minute inquiry into the grounds of this doctrine; but we may be permitted to say, that its author has adduced no authentic or unequivocal facts in its support; and it consequently rests entirely on the force of his own belief and judgment. It is obvious, that to search for means of refuting such a doctrine, would be idle indeed; and we therefore conclude what we intend to say on this head, by the following remarks from Mr Shaw.

"In the spines of those who have been much distorted, I have found the intervertebral substance diminished on the concave part of the curve, in the same proportion as the bodies of the vertebræ, but I have never found any mark of disease in it. On the contrary, in the cases which I have examined, it has retained all its peculiar firmness and elasticity. I may particularly refer to the specimens numbered 12 and 13 in the Appendix; for as they are not dried, but preserved in spirits, they still afford proofs, not only of the invertebral substances having retained all their characteristic qualities, but also of all the other ligaments being in a healthy condition. This is especially the state of the anterior and posterior ligaments of the bodies, and of the elastic yellow ligament at the roots of the spinous processes.

"When the ligaments are diseased, distortion of the spine is produced, but of a very different character from that which forms the subject of the present inquiry. Some instances are given in the Appendix; but the subject is so important, that I reserve the full consideration of it to the next volume."—*Shaw,* pp. 71, 72.

3. The next opinion, whether distortion depends in any case on dislocation, involves a question of some consequence, and which has not yet been determined in such manner as to furnish any positive conclusion. Mr Shaw agrees with most of the best authorities in regarding dislocation of the vertebræ as either impossible or very rare, without fracture; and is of opinion, that no authentic case of distortion from this cause has yet been adduced. He is then led into a long examination of certain cases adduced by Dr Harrison, in the Medical and Physical Journal, vol. 44th, as examples of distortion in consequence of dislocation. This involves part of the previous question of relaxation of the ligaments, and part of another inquiry,—how far external violence may operate in producing distortion. The discussion, which is somewhat controversial, would occupy too much of our readers' time to enter into it fully, and we must not pretend to take a partial view of it only. As we must leave something of Mr Shaw's work to the discretion of our readers, we shall therefore not scruple to make this one of those subjects, on which they may peruse his observations at their leisure. The general result is, that according to our author's researches, lateral curvature is never the consequence of dislocation of the vertebrae.

Mr Shaw having thus settled these several subjects of pathological investigation, proceeds in the next section to inquire into another opinion,—namely, whether lateral distortion is caused by disease of the vertebræ. We do not perceive that he expresses himself either with perspicuity or precision on this point; or at least he leaves it almost in the same uncertainty in which he found it. He begins, by stating, that as most eminent surgeons entertain this opinion, it is safer to proceed on it in practice; but questions its justice, as it not only is the cause of a patient being subjected unnecessarily to severe treatment, but in some instances of an increase of the distortion. He does not deny that disease of the spine will produce dislocation; but he states his conviction, that many instances of distortion said to succeed this cause, will be found to be very different from that denominated *lateral curvature*, being either occasioned by vertebral ulceration, or by rickets. He then adverts to those reports of the state of the vertebræ in persons who have died affected with lateral curvature, in which it is stated that the bodies are softened, and full of scrofulous substance. This statement, he contends, is incorrect, and in the greater number of instances he affirms the internal structure of the vertebræ to be natural. As the explanation given by Mr Shaw deserves to be known to those who examine bones said to be diseased, we give it in his own words.

"If the vertebræ of a patient, who has long been confined to bed, be examined, the appearance described above is found; but if the person has been in the habit of taking exercise a short tim eprevious to death, the bodies of the vertebræ are discovered to be as firm and compact as those in a perfect spine. I trust that it is now almost unnecessary to add, that instead of admitting that the softened condition of the vertebræ affords a proof of the existence of a scrofulous disease, that it should be considered as merely showing the bad consequences of confinement and want of use. The wasted appearance of the muscles, which is occasionally observed in cases of lateral curvature, and which has been confounded with their state during the inflammatory stage of the carious diseases of the spine, also depends on the same causes as the softening of the bones.

"It is well known that the shape of the vertebræ is materially altered in cases where the spine is much distorted; but as no mark of disease is discovered when a section of the bones so mis-shapen is made, we may infer that the change of form is a consequence that may be produced independent of any specific disease existing in the bones, especially as it is found to correspond to the direction in which the pressure has been made.

"In the sections of the spine, marked in the Appendix 11, 12, and 13, although the bodies of the vertebræ are much altered in shape, their internal structure is not in the slightest degree different from that of vertebræ in a natural state; there are scarcely even any marks of anchylosis on them, while some of the transverse and articulatory processes, and even the ribs, are not merely anchylosed, but studded with exostosis. As similar results have been observed in many other instances, they may be considered as additional proofs that the bodies of the vertebræ, in cases of lateral curvature, are seldom affected with a specific disease, and are not even so liable as the more solid bones to be inflamed by the irritation caused by pressure." pp. 93–95.

He afterwards admits that these observations do not accord with the complaint which is generally made, of pain in the back; but ascribes this in slight cases to weakness, or to changes in the position of the bones.

To what cause, then, it may be asked, is this horrible and unmanageable deformity to be ascribed? Mr Shaw has destroyed even the last resource of explanation; and, no more than ourselves, agrees with any of the former hypotheses. If it is neither the result of vertebral disease, nor of disease of the ligaments and fibro-cartilages, nor of rickets, nor of *mollities ossium*, whence is it derived? Mr Shaw himself does not assign any positive reason in exchange for those of which he deprives the profession. In the subsequent section, which is a further illustration of the varieties of distortion, we find indeed some more unequivocal information. When speaking of the serpentine form of spine represented in figure second of the first plate, he makes the following remarks: " Although the necessity of attending to the effects produced by this serpentine form of the spine must be obvious, there are other practical questions illustrated by the preparation represented here. The lower dorsal and the upper lumbar vertebræ are not only much altered in form, but are also partially anchylosed; and even a considerable quantity of exostosis is thrown out on their sides. Two circumstances most important to be recollected in the treatment of distortions, are proved by this condition of the spine; first, *that a considerable degree of inflammation occasionally exists in the vertebræ in such cases;* and, secondly, that it is sometimes impossible to cure even a slight distortion of the spine."

Is the " considerable degree of inflammation" mentioned here a cause of the distortion, or its effect? We could have wished that Mr Shaw had mentioned the marks or signs by which he inferred this inflammation; whether the vertebræ were enlarged or prominent, soft or hard, corroded by ulceration, or of an extraordinary brittleness; and we could have wished him also to have stated such proofs, as might have shown these marks to have preceded, to have followed, or to have accompanied the process of distortion. He afterwards speaks of anchylosis, and the obscurity of its pathology; but it is not easy to see in what manner Mr Shaw can employ this change in illustration of a deformity, which he contends, is quite independent of any morbid state of the bones. The arrangement of this part of his Treatise is much embarrassed with confusion and disorder. In this penury of specific information, we resumed the perusal of our author's Preliminary Observations on the Pathology of Distortion, in hopes to find something tangible on the organic changes which terminated in distortion. Here, however, our success was not more gratifying than in other parts of the work; and we were compelled to surrender our credulity to sundry speculations on the effects of action and inaction on the structure and consistence of such animal substances, as bone, cartilage, muscle, cellular membrane, &c. By several observations on the influence of the same agent on the consistence of bone, we are led to believe, that Mr Shaw regards mere inaction, by softening the bones, to dispose to distortion; and, in the course of a few pages more, he informs us, that this law is no where better exemplified than in the history of the Affections of the Spine.

"The muscles, whose office it is to support the vertebræ, may be so weakened by want of exercise, as to become incapable of performing their functions. When this takes place, the vertebræ and the ligaments which bind them together yield to the superincumbent weight, for they are affected in a secondary manner by the same causes that have produced debility in the muscles. Weakness of the muscles is, therefore, perhaps, one of the most frequent forerunners of distortion; though there are many other causes which I shall have occasion to point out, in describing the various kinds of deformities." p. 14.

It is really much to be regretted, that a surgeon, whose opportunities of acquiring information in pathological anatomy are so great, should be so far from communicating it either in a specific way, or in an intelligible form.

We pass over several intermediate pages on the changes induced on the form of the chest, either with or without curvature of the spine, to notice three concluding aphorisms with which the author introduces a section at page 124. These aphorisms are, first, "That the spine may be distorted to the greatest possible degree, although the bones are not affected with rickets; secondly, That in such cases the pelvis is seldom or never affected; and, thirdly, That the pelvis is never distorted by the application of instruments, in cases where the distortion is independent of rickets, or *mollities ossium*." On the first of these aphorisms, the author does not pretend to enter into a minute or argumentative discussion; but merely refers to various instances of curved spine, and especially to one which he has delineated in the fourth plate, and in which the dorsal and lumbar vertebræ are undoubtedly distorted out of all form, while the bones of the pelvis are perfectly symmetrical. He informs us, however, that the proofs on which this opinion rests, were first drawn from comparing a number of distorted skeletons."

"From these facts, I drew two conclusions, which, if correct, will be acknowledged to be of some importance in practice. 1st, That unless some of the long bones, or the bones of the head, be affected, however distorted the spine may be, we are not to consider the disease as rickets, *i. e.* that the distortion does not depend on a specific disease of the bones; and, 2d, That the spongy bones (as of the spine, carpus and tarsus), are not so liable to be affected by ricketts as the long bones, and those which are more compact in their structure." p. 126.

On this we have only to remark, that it is obvious that Mr Shaw, in forming the aphorism now stated, proceeds all along on the principle, that rickets is a disease of the whole skeleton, and that no bone is exempt from its perversion. We admit that this doctrine has been generally taught by instructors, and admitted by disciples; but we are not aware that it rests on any better foundation than mere assumption. It is certainly neither inconsistent with fact, nor quite absurd, to suppose a certain number or set of bones only affected by rickets; nor is it impossible to suppose different parts of the skeleton to be affected in different degrees. Unless, therefore, Mr Shaw can establish this doctrine on a more substantial foundation than that on which it now stands, we do not perceive, that the inference regarding the independence of spinal distortion and the rachitic *diathesis*, as it may be termed, is of any force whatever. The whole proposition in truth rests on the opinion which Mr Shaw entertains of the nature of rickets, whether he regards it as in every instance a constitutional disease, or, as we are convinced it is in some instances, an affection merely local. Viewed in this light, the aphorism of our author is neither true nor false; but simply expresses, in language indeed somewhat different, this fact,—" that the spine may be distorted to the greatest possible degree, although the other bones of the skeleton are not distorted."

Having settled the first proposition in this manner, the others which immediately depend on it, are easily disposed of. In this view indeed, the instances of symmetrical and well-formed sculls, and *pelves*, such as those recorded by Sandefort in persons with crooked spines, those in Mr Bell's Museum, in the Museum of the College of Surgeons, and in Dr Hunter's Collection at Glasgow, are mere proofs of the local nature of rickets, which we have already ventured to admit.

We hasten to the practical measures investigated and proposed by our authors.

Both are strongly in favour of friction, in whatever mode it is practised. Mr Shaw strongly reprobates the attempt to reduce vertebrae supposed to be displaced; and, indeed, no one acquainted with the structure of the vertebral column, will ever propose a measure so unreasonable, or so likely to be injurious. Rest on the inclined plane for several hours daily, has been much recommended by many practitioners of late years. The arguments offered in its favour were founded on the idea that the distortion depends on undue contraction of the muscles of the spine, and on a diseased state of the vertebrae. Mr Shaw disapproves of it in the treatment of lateral curvature; because the disease proceeds originally from weakness, and the body is weakened instead of being strengthened by such management. The plan which Dr Dods proposes is completely at variance with this principle. By his own account he actually places patients on their back on a concave elastic couch, on which there is a mattress two or two and a half inches thick;—a measure which is likely to increase rather than diminish the deformity. It ought to be remembered, that nothing is a remedy unless when seasonably and judiciously applied: and this is to be said of the horizontal position and the inclined plane. There is little doubt that, occasionally used, it is a very convenient and effectual mode of obviating distortion in young persons of tall slender figure and delicate frame. To confine an individual to it for months, unless there is positive disease of the vertebrae, which may be generally ascertained by care and attention, is evidently useless, and must defeat the purpose intended.

The use of machines, and mechanical contrivances in general, both Dr Dods and Mr Shaw agree in condemning. Dr Dods thinks they cause, rather than prevent deformity; and Mr Shaw has adduced several instances of distortion, which, instead of being cured, were aggravated during the employment of these instruments. What has been already said of the horizontal position, may, however, be justly applied to mechanical restraint;—that there are kinds of distortion which may be prevented from getting worse, and that, in some instances, their use is admissible under proper restrictions, and with adequate superintendence. The opinion that they ever cure, is now almost entirely abandoned.

On the subjects of Exercise, and the other details of treatment, we refer to the works themselves.

III.

Clinique Medicale, ou Choix d'Observations recueillies à la Clinique de M. Lerminier, Medécin de l'Hopital de la Charité, Membre Titulaire de l'Academie Royale de Medécine, &c. et publiée sous ses yeux par G. Andral Fils, Docteur en Medécine de la Faculté de Paris, Membre adjoint de l'Academie Royale de Medécine, Membre du Cercle Medical de Paris. Première Partie. Fièvres. A Paris. Chez Gabon et Compagnie, Libraires, Rue de l'Ecole-de-Medécine; et à Montpellier chez les mêmes Libraires. 1823. 8vo. pp. 512.

This is undoubtedly a work of considerable merit, and is recommended to the profession by containing much useful information on a subject of great interest, and by no means the most easily understood in practical medicine. The "selection of cases" which it contains, are perhaps much of the same stamp with other cases of fever, and present the usual varied characters of that disease, whether resulting from the influence of individual constitution, season of the year, complication, or even treatment. It is the manner in which these cases are arranged, and the mode in which the facts furnished by them are generalized by M. Andral, that form the peculiar and valuable characteristic of this work; and to these subjects we propose to direct the attention of our readers.

We learn from the preliminary discourse, that M. Lerminier, who holds the office of physician to the Hospital of La Charité, conceived the design of rendering his professional duties subservient to the preparation of a system of clinical medicine; and that he consigned to M. Andral the task of selecting cases and dissections, and illustrating them by suitable deductions and observations. The work thus projected will consist of several parts, each embracing a series of cases and researches, suited to illustrate the history and nature of those diseases which are most important and least understood, in the department of internal pathology, and altogether forming a complete system of clinical instruction. In the present volume, which is the first part only, M. Andral confines his researches to the subject of Fevers, continued and intermittent. He appears neither to follow the common division of the more early nosologists, nor that proposed by Pinel; but, equally disregarding both, seems to consider fever, whether continued, remittent, or intermittent,—bilious, mucous, adynamic, or ataxic, as at all times, and in all circumstances, the same morbid process, and differing only, so far as their pathological character is concerned, in the mildness or severity of their symptoms. The volume consists of two great divisions. The first contains cases, generally mild, to illustrate the phenomena and treatment, or cases of greater severity, with or without dissections, with observations and inferences on each, to illustrate the pathology of the disease, and constitutes the practical and clinical department of the volume. The second division consists of general conclusions from the facts recorded in the first, and presents a recapitulation of those results which the experience and observation of MM. Lerminier and Andral furnish. With the former of these divisions we propose to be very brief; and, after noticing one or two particulars which deserve to be selected from the general collection of facts, we shall pass immediately to the examination of those general results which are most deserving the attention of readers.

After a number of preliminary observations on the nosological character of fever, and the proposal of a series of questions on many doubtful points, which have been much discussed recently, regarding the presence of local affection, and its rank, as a cause or effect of fever, M. Andral, who must be regarded as the author, proceeds to enumerate the principal circumstances under which continued fevers appeared, and the prominent characters which they presented to the observation of M. Lerminier. Under the first head we find the following table, to show the connection of age, and the susceptibility to febrile commotion.

Of two hundred and twenty-nine patients admitted into the wards of La Charité during the year 1822, the numbers attacked at different ages, were as follow.

Age of the Patients.	15	16 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	59	64	65	71	75
Number of Patients.	1	67	99	29	10	4	7	0	7	1	1	1	1	1

It appears from this table, that the age from 20 to 25 years, and then from 16 to 20 years, are the two periods of life during which continued fevers occur most frequently. The average of the last quarter of 1821, had already given a similar result; of 34 cases treated by M. Lerminier during the quarter, 7 were from 16 to 20 years, 16 from 20 to 24, 6 from 24 to 30, 2 of 31, 1 of 45, 1 of 56, and 1 of 69. This difference in the frequency of fevers, according to the age of the individual, may be partly ascribed to a difference in the action of those causes, under the influence of which these diseases occur.

With regard to the nature of these fevers, we are informed that they presented most of the characters of the fevers termed inflammatory, bilious, or mucous, as they are indicated in the philosophic nosography of Pinel, and all the features of the gastro-enteric inflammation, on which Broussais has laid so much stress, with predominance of *gastritis*, *enteritis*, or of *colitis*.

The influence of remedies and of different modes of treatment has been examined with much care by M. Lerminier; and the results show what degree of confidence should be placed in the separate effects of emetics, diluents and cooling remedies, and copious blood-letting. In Parisian practice, the influence of example has been hitherto powerful. Some, in imitation of Maximilian Stoll, recommended emetics in every case; others, after De Haen, condemned these medicines, and thought that the best treatment consisted in the administration of diluents and refrigerants; and a third school, more modern, differ from both in depending for the speedy and easy cure of fever, on the use of copious blood-letting. These three modes of treatment were tried by M. Lerminier, as the assemblage of symptoms seemed to indicate; and often, in order to appreciate the power of each, he employed them in individuals placed in the most similar circumstances possible. From September 1821 to January 1823, seventy-five patients, attacked with slight continued fevers, were treated with the most simple mucilaginous or acidulous drinks, forty-nine by emetics, and in some cases by purgatives, one hundred and three by blood-lettings general and local. Several of the individuals of the two last classes were treated alternately by blood-lettings and evacuations; and from a series of fifty-three cases, illustrative of the effects of these several therapeutic measures, M. Andral draws the following conclusions:

1. Many of these cases manifest a spontaneous tendency to cure, whatever treatment is employed; and in such the most opposite methods are equally successful.

2. It is impossible to give an exclusive preference to any one of the three methods. Each may be advantageous when it is properly employed.

3. The treatment by simple mucilaginous or acidulous drinks is in many cases sufficient, and is most expedient when no precise indication occurs. Profuse blood-lettings will then exhaust the patient, and render convalescence more tedious and more painful.

4. The symptoms which constitute simple gastric load, or even bilious fever, yield readily and rapidly to the administration of emetics. The symptoms which distinguish intestinal load yield equally to purgatives. After the use of these means, the headach disappears, the pulse becomes less frequent or even natural, the digestive functions return to their natural state, and looseness especially is checked after undergoing a temporary increase. Similar effects are obtained much more slowly by the use of simple diluent fluids, the same cases, so far as comparison could be made, not being improved in fifteen days, which, suitably evacuated, recovered their usual health in forty-eight hours. These effects are to be ascribed, according to our author, not only to the changes effected on the gastro-enteric mucous membrane, but also to the simultaneous and indirect influence exercised on the biliary and pancreatic secretions, the mechanical influence of vomiting on the circulation, the change in the state of the skin, and perhaps in the nervous system. The efficacy of this treatment, by acting on the gastro-enteric mucous surface, is demonstrated by the practice of Sydenham in the London epidemic of 1661, by that of Baglivi in the epidemic fevers which raged in the vicinity of

Rome, by that of Tissot in the fever of Lausanne, and of Sarsone in the fevers of Naples in 1764.

5. When the tongue is red at its point, margins or centre, when it is uniformly red and smooth, when it has a tendency to become dry, when the thirst is ardent, the pit of the stomach painful, blood-lettings shorten the duration of the disease, moderate accidental symptoms, and often prevent the occurrence of those which are severe.

6. Even when the preceding symptoms exist, the employment of emetics is in some instances not unsuccessful, whether they cause favourable vomiting, or dislodge irritation from the digestive passages. Thus an emetic suspends diarrhœa by irritating the stomach, or, in other instances, banishes the symptoms of gastritis, by acting chiefly on the bowels. In some cases in which the tongue may be bright red, without any other symptom of inflamed stomach, M. Lerminier ascribes it to a sort of afflux or congestion of blood in the upper parts, rather than to inflammation of the stomach. When an emetic, in such circumstances, deprives the tongue of its unnatural redness, removes the injection of the face and eyes, and dispels the headach and giddiness, he thinks its utility depends on a transient revulsion toward the stomach and intestines.

7. Derivative bleeding from the *anus* checks looseness more certainly and speedily than general bloodletting.

8. Ipecacuan is not more immediately astringent than tartarised antimony. It most commonly begins by increasing the number of stools at the same time that it excites vomiting. When the symptoms of gastric load are well marked, a small quantity of ipecacuan, six grains for instance, will produce abundant vomiting. M. Leminier tried *emetine*, in the dose of half a grain, with the same general effects; one grain being equivalent to about ten grains of the powder of the root.

The general recapitulation to which we now proceed consists of three parts;—the first treating of the morbid changes observed by dissection in the dead subject (p. 253—420), the second of morbid phenomena occurring in the course of the disease, 420 to 464, and the third of the treatment, 465 to 494. It is chiefly to the first of these that our present attention is to be directed.

M. Andral commences this part of his subject with inquiries into the morbid changes which are found in the alimentary canal of persons cut off by fever; and as these partake more or less of the inflammatory character, he begins with considering the anatomical characters of inflammation of this tube.

The alimentary canal, when inflamed, if inspected from without, is generally contracted, and appears injected. Contraction may exist independent of inflammation, as is evinced in the case of the pyloric portion of the stomach, and sometimes the colon, which may be greatly narrowed, without trace of inflammation of their mucous or inner surface. The injected appearance seen without may be seated in the subserous cellular tissue only, more frequently in the submucous tissue; but it indicates, in no case, the condition of the mucous membrane, which may be inflamed, disorganized, or ulcerated in portions of bowel, which, externally, had been considered sound. The inner or mucous surface, therefore, of the intestine should be examined, to judge correctly of its state.

This surface may present considerable variety of aspects. Often a considerable tract may be of a uniform red colour, varying from vermilion to the deepest brown. In some instances this redness becomes gradually fainter, as is observed in the small intestine; in others it may terminate with an abrupt edge, as is seen in the union of the pyloric with the splenic end of the stomach, at that of the stomach and duodenum, and in the different shades of the upper and lower surface of the ileo-caecal valve. The valves of the small intestine (*valvulæ conniventes*) are generally of a much deeper red than the intermediate spaces of intestine; but if they are unfolded, this colour, which depends on the mutual application of two folds of mucous membrane, disappears. In other instances we find red or brown patches, round or irregular in shape, in the intermediate spaces of which the surface of the intestine is almost white. These patches are to be regarded as spots of isolated or circumscribed inflammation. Instead of the uniform red tint, we may see numerous arborescent clusters, occasioned by complete injection of numerous anastomosing branches. These vessels are frequently surrounded by small red points, which appear to be caused sometimes by partial injection more lively, sometimes by slight circumscribed effusion of blood. Lastly, the inner surface of the bowel is sometimes occupied by pimples, pustules, or fungating growths of various shape and size.

To understand clearly the degree to which the mucous membrane may be injured by the process of inflammation, it is requisite to detach it from the subjacent tissues, and study its condition separately. If the stomach or any portion of the intestine of a living animal be cut open, not during the process of digestion, the mucous membrane is every where white, or of a pale rose colour. Through its transparent tissue the subjacent laminar or cellular tissue may be seen. It is generally injected moderately only, more if the animal is much agitated, and makes violent efforts. During the process of chymification, the gastric mucous membrane assumes a red tinge, a little deep; as the chyme is conveyed into the small intestines, their mucous membrane in its turn becomes injected; and a similar tint is observed in those portions of the large intestine in which the fecal matters are accumulated. In several rabbits, for example, M. Andral found the mucous membrane of their capacious caecum, which is at all times filled with excrementitial matters, of a sufficiently bright red.

The mucous membrane of the alimentary canal is thickest in the stomach, thinner in the small intestine, thinner still in the cæcum, and becomes a mere pellicle in the colon. Its consistence or tenacity observes the same ratio. In the stomach, it may be detached in large flakes, and pulled in various directions, without breaking;—in the large intestine it is torn by the slightest effort. Its adhesion to the subjacent tissue is inconsiderable in the stomach; in the duodenum it cannot be detached without difficulty; in the rest of the small guts it adheres more closely at the valvular folds than in the intermediate spaces; and through the whole tract of the colon the attachment is firm.

These circumstances, regarding the natural state of the gastro-enteric mucous membrane, will facilitate the examination of its morbid changes.

If the mucous membrane, in the first stage or commencement of inflammation, be removed and placed between the eye and the light, it appears traversed by numerous vascular nets, or it presents a uniform red tint, and intercepts completely the passage of the luminous rays. In place of the red colour, it often presents a brown tint, more or less deep. This peculiar shade does not depend on the duration of the process; it supervenes rapidly when the inflammation is vehement, and it then appears to announce the commencement of disorganization of the membrane. If corrosive sublimate, arsenic, acetate of copper, or any active corrosive poison, be conveyed into the stomach of an animal, the mucous membrane, in the course of an hour, will be of a cherry red colour in some points, and of a brownish grey in others, or brown all over. Orfila found the gastric mucous membrane of animals, who twenty-four hours before had swallowed euphorbium, of a very deep red brown. In the human subject, the membrane is of this colour, when it is also softened. From these facts, M. Andral infers, that the brown colour of the inner surface of the stomach is an effect of inflammation, and that it may occur equally in those acute forms of the process which very quickly disorganize the tissue which they attack, as in those chronic forms which produce the same effect after a long period.

Thickening of the mucous membrane is another effect of its inflammation. It may be diffused or circumscribed. It is very distinct in chronic inflammation; and in some examples of chronic *diarrhœa*, the thickness of the colic membrane alone may exceed that of the four tissues taken together. Circumscribed patches of thickened membrane are rather common; they are round or oblong, raised above the level of the adjoining surface two or three lines; smooth rugous on the surface, varying in size from a ten sous to a five franc piece, with the surrounding membrane perfectly white and transparent. They are very rare in the stomach, more common in the large intestine, especially in the transverse arch, and still more frequent at the lower end of the ileum. Sometimes a single patch, greater or less, is seen;—in other cases they are numerous. In respect of their colour they are of two sorts, one red, apparently of recent formation,—the other of a duller white than the rest of the membrane, apparently the result of a former disease, the other symptoms of which have disappeared. It is a mode of termination by hardening.

When it is much thickened, it retains, in most cases, its consistence, or even acquires greater density; in other instances, with its ordinary thickness, it is singularly softened. Pathological observations and experiments made on living animals demonstrate, that the mucous membrane of the alimentary canal may be softened in a very short time, whatever be the energy of the inflammatory process. Thus Brodie found, that half an hour after the injection of a few grains of corrosive sublimate into the stomach of a dog, its mucous tissue had undergone a remarkable softening. In this state the mucous tissue cannot be removed in its membranous form; it is semifluid, and the slightest scraping with the scalpel, or rubbing by the finger, reduces it to pulp, or reddish pap. Similar softening is sometimes observed in parts of the mucous surface, which are perfectly white, and perhaps are to be regarded as the effect of former inflammation. This peculiarity, it will afterwards be shown, is observed in the large intestine in cases of chronic looseness. Besides being thickened and softened, the gastroenteric mucous membrane sometimes presents red or brown conical growths, extremely soft, mutually pressed towards each other, and rising from four to five lines above the level of the adjoining surface. They are sufficiently similar to the fringes at the lower surface of the tongue, if these were divided into small longitudinal fragments; and, like them, they are moveable and floating. MM. Lerminier and Andral have observed these growths in the large intestine only, but Orfila found many similar in the stomach of a man who perished two months after swallowing some powder of cantharides.

The mucous surface is sometimes occupied, instead of these growths, with white conical elevations of half a line or a line high, as broad as a lentil at the base, and presenting at their depressed summits an exact resemblance with the pustules of small-pox. Rarely isolated, they are generally in clusters, like the confluent form of that eruption, with the intervening mucous membrane sometimes red, sometimes scarcely injected. Our authors have never met these pustules in the stomach; they have seen them in the two first portions of the duodenum only once, and thrice in the transverse arch of the colon; in the two lower fifths of the small intestine they are most frequent.

In the colon they have most frequently observed elevations of a different character. Conical as the former, and seated like them in the mucous membrane, their base is much broader, their elevation greater; they terminate in a pointed summit; they are of an intense cherry red, and the surrounding membrane is somewhat injected. They are of opinion, that the nature of these bodies is more easily understood by comparing them to the small tumours of the skin, known by the name of Boils.

Inflammation of the gastro-enteric mucous membrane necessarily modifies its functions, and especially those which consist in the secretions incessantly going on at its surface. The intestinal mucus, instead of being viscid, ropy, and sufficiently consistent, becomes much more fluid like *serum*, or it acquires great plasticity, hardens, and is converted into false membrane. All authors mention such membranes, which in dysentery line the inner surface of the colon, and are discharged with the stools. The question of their organization, cohesion, and consequent obliteration of the calibre of the bowel, has not yet been sufficiently investigated. Our authors have seen such false membranes in the stomach and large intestines only. They found, for example, the whole inner surface of the pyloric portion of the stomach covered with a firm greyish layer, simply applied, and coming off in flakes; and, in a girl of twelve, the inner surface of the stomach was occupied with many red patches, extending like broad bands from the *cardia* to the *pylorus*, each of which was covered by a greyish, buffy, membranous layer, the intermediate spots being very white and uncovered.

It is not uncommon to find inflamed portions of intestine covered by a reddish fluid, which appears to be a mixture of mucus and blood. The cæcum and end of the small intestine are the most frequent situations of this morbid secretion; and on some occasions it is found to involve packets of ascarides.

To show the great quantity of fluid secreted by the intestinal mucous surface when inflamed, our author refers to the example adduced by Morgagni,* of a woman who, in a single day, discharged by the anus forty pounds of limpid serosity. The debility occasioned by a loss so great may cause death in a very short time. The best and most forcible example, both of this fact and of its effect on the economy, is found in the phenomena of Indian cholera, and similar states of excessive secretion from the intestinal membrane. Another case, very much in point, is that related by Morgagni of himself, when travelling between Forli and Pesaro in the year 1733,—when he was suddenly seized with diarrhœa so profuse, that, in twelve hours, he discharged sixteen pints of serous fluid, which was almost limpid. The pain of the belly was slight; and the dejections, though very copious, were not frequent. Being somewhat squeamish, he thought of exciting vomiting; and upon ejecting a small greenish substance, which appeared to be the leaf of an herb, the sickness and diarrhœa were cured simultaneously.

The copious discharge of biliary fluid in certain states of inflamed intestine, has been remarked by many, and especially by Stoll, who, like others, regards the copious secretion of bile as the cause at least of increased motion. This opinion may not, in all cases, be without foundation; but the dissections of our authors demonstrate, that it is most commonly the effect of a previous change in the enteric mucous surface, and that the inflammation of this membrane induces a most abundant secretion of bile, which is necessarily discharged in this manner.

The submucous cellular tissue continues, in the majority of cases, quite unaffected under a mucous surface violently inflamed and even disorganized. In some instances it is much injected; and in some it becomes like the arterial cellular tissue, extremely brittle, allowing the mucous membrane to be removed without tearing, to the extent of several inches. In some circumstances effused blood is found in its meshes, as Orfila found in animals poisoned by the acrid root of the spruce-laurel. Lastly, in many instances of chronic inflammation, the submucous cellular tissue becomes dense, hard, and, at the same time, of considerable thickness. Less frequently it is found soft and pulpy.

The muscular coat of the alimentary canal presents few alterations of structure. Our authors, however, have seen it much softened, and liable to be broken by the slightest effort. In the transverse arch, and in the descending colon, they found it of a scirrhous density and hardness, but the longitudinal and circular disposition of its fibres still perfectly distinct. Lastly, it is sometimes deep red.

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* Epist. XXXI. 9.

But though the structure of the muscular tissue is rarely affected during inflammation of the mucous membrane, its contractile powers are frequently thrown into sympathetic action. This is readily demonstrated by direct experiment, by injecting any irritating substance into the canal, when the bowel hardens and contracts at the point at which the inner surface is in contact with the irritating agent. This contraction continues after death, as the observation of our authors proves. In general it is partial, and rarely occupies the whole extent of the tube. An interesting example of this, however, is recorded by M. Tartra, in his Dissertation on Poisoning by Nitric Acid. In an individual who died three months after swallowing this poison, the alimentary canal was reduced to so small volume, that it might have been held in the hollow of the hand. Its calibre, through its whole length, did not exceed that of a common quill.

Intus-susceptions, or invaginations, are considered by many authors to be connected with inflammation, either as cause or effect. Our authors affirm them to be more frequently without inflammation, and think it probable that many are formed only at the moment of death, when the peristaltic motion becomes much more active, as is evinced by experiments on living animals. They are more frequent in the ileum,—a circumstance which the free motion of that part of the canal enables us readily to comprehend. Fabricius Hildanus and Bartholin, saw the cæcum received into the ileum; Hartmann, on the contrary, found the ileum inserted into the cæcum. They are very rare in the colon; yet Meckel states, that he saw the transverse arch and descending portion received into the sigmoid flexure; and Bonetus has cited an instance of invagination of the rectum in the person of a man who died with obstinate constipation and fecal vomiting. " Are we to credit," says Andral, " the veracity of a German author, who says that he saw the duodenum invaginated into the common biliary duct?"

These unusual arrangements of the alimentary canal most commonly consist in the upper part of the bowel being inserted into the lower. They may be numerous, amounting to six or seven in the same subject; they vary in length from several inches to more than two feet; and the symptomatic effects which they cause vary according to their magnitude, their situation, their number, and the extent to which they obliterate the canal of the intestine.

The subserous cellular tissue is still more rarely affected than the submucous. Like the latter, it may become very brittle, or may acquire great thickness; in which case the peritoneum is parted from the muscular coat by a cellular layer two or three lines thick, which, in the state of health, is scarcely visible. The peritoneum itself remains in all cases untouched, though occasionally it becomes very brittle. In some cases our authors found all the intestinal tissues softened at once in the highest degree. The slightest force is then sufficient to destroy its walls, and mere friction reduces them to a pulp. This general softening is more common in the stomach than in any other part of the canal.

The alimentary canal, when inflamed, is liable to be destroyed in a greater or less extent; and whether its component particles be absorbed, or are carried outward with the contents of the bowel, ulcers, uniformly seated in the mucous membrane, primarily or secondarily inflamed, ensue. These ulcers may be formed at any spot of the canal, from the cardiac orifice to the anus; but they are not, in all places, equally frequent. They are rare enough, for example, in the stomach, and still more rare in the duodenum and jejunum; they are very common in the lower third of the small intestine; and they are again less frequent in the different parts of the great intestine. Some idea of their comparative frequency in the different regions of the canal, may be obtained from the following table, which presents the result of dissection of seventy-one persons, several of whom had ulceration of several parts at once of the alimentary canal.

Persons.			
In 10	there were	ulcers of the	stomach.
1	—	—	duodenum.
9	—	—	jejunum.
38	—	—	lower part of ileum.
15	—	—	cæcum.
4	—	—	ascending colon.
11	—	—	transverse colon.
3	—	—	descending colon.
1	—	—	rectum.

They are generally numerous, unless in the stomach, where they rarely exceed one or two. In the upper part of the small intestine they are uniformly separated by wide intervals; in the lower part they are always much more approximated; and they often adjoin and coalesce near the ileo-cæcal valve, so as to form a single extensive ulcer. They are rarely confluent in the cæcum and the rest of the large intestine, in which the intervening spaces are in general more considerable than the space occupied by the ulcers.

These ulcers rise often in the middle of the circumscribed red patches already mentioned, the surrounding membrane continuing white, as it does round the patches. It is important to remark this disposition; for the perfect whiteness which surrounds many intestinal ulcers, has led to the admission that they might originate in the mucous membrane without previous inflammation. In this instance, it is evident they are the effect of a circumscribed form of this process.

Ulcers may also be the consequence of the pimples and pustules with which the mucous membrane is occasionally covered. When these eruptions indeed are examined with attention, the summit of some presents a slight erosion, in others it has undergone considerable loss of substance; the minute sore which is thus formed extends progressively from the summit to the base of the pustule, and terminates in its entire destruction. Is there any analogy between the formation of these ulcers, and that of those which result in the mucous membrane of the mouth, from the minute vesicles or pustules of Thrush?

Lastly, ulcers may be the consequence of eschars dropping off from the mucous membrane.

Several authors have ascribed the commencement of intestinal ulcers to inflammation of the mucous follicles. This opinion is rendered plausible by the great vital energy of these bodies, their vascularity, and the extraordinary secretion of which they are the seat when the membrane is inflamed; but it is not supported by the evidence of any positive fact. The frequency of ulceration in the lower part of the small intestine is indeed proportioned to the great number of follicles; but they are also very numerous, much larger, and more apparent in the duodenum than elsewhere; and yet this is the region of the canal in which ulcerations appear most rarely.

It is impossible to come to any fixed conclusion on the period at which inflammation of the mucous membrane may terminate in ulceration. It often happens that no trace of breach of continuity can be seen in it, though it has been for some time the seat of an inflammatory process of considerable intensity. The facility and rapidity with which the ulcerative process takes place, appear to depend on inexplicable individual dispositions,—a fact which receives confirmation from what is observed in the bodies of animals of the same age and strength, which have been poisoned by an equal dose of corrosive sublimate. At the end of forty-eight hours, the gastric membrane is in some merely of a bright red colour; in others it presents several patches of ulceration. The same principle is perhaps to be employed in explaining those cases of rapid or sudden dissolution in which ulcers are found in the stomach. M. Andral refers to Morgagni for an instance in which a person in good health was suddenly seized with atrocious pains of the epigastric region, and with all the symptoms of inflammation of the stomach, and expired at the end of twenty-four hours;—ulcerations were found in the stomach.

The size of intestinal ulcerations is very variable. Some are so minute as scarcely to admit the head of a common-sized pin; others are of several inches diameter in every direction; and some occupy the whole circumference of a fold of intestine. Our authors found the mucous membrane entirely removed to the extent of more than six fingerbreadths above the cæcum; and in this part of the ileum, and in the stomach, they have met the largest patches of ulceration.

In shape they appear to observe nothing regular or invariable; some are oblong in various directions, others circular, and others are linear, or mere furrows.

Their edges are always formed by the mucous membrane. They may be red, thick, raised from two to three lines above the bottom of the sore,—or white, thin, and on the same level. They are often irregularly cut down, and present numerous fringes which advance from the circumference to the centre of the sore. The surrounding mucous membrane is often detached to a considerable extent; and if the sores are numerous and very near each other, the intermediate mucous membrane may be entirely, or almost entirely, detached from the subjacent tissue. This detachment, arising from alteration of the cellular tissue, is similar to that which takes place round many cutaneous ulcers.

The bottom or surface of the sore varies according to the period at which it is inspected. If the breach of continuity is recent, the laminar tissue which forms the bottom is thin and white, as in the natural state, and may preserve this appearance for a longer or shorter period; but when the ulcerative process has continued for some time, it acquires considerable thickness, which is felt distinctly by touching the outer surface of the intestine; it becomes rugous, unequal, granular, grey, red, or brown, and secretes a fluid of these several shades, which sometimes hardens into a false-membrane, and covers the ulcerated surface with a layer more or less thick. In some instances this crust is perfectly black, and appears to be converted into a true eschar. In other instances the laminar tissue undergoes an insensible destruction like parts attacked with that form of inflammation which Hunter termed *ulcerative*, and the bottom of the sore is then formed by the muscular membrane. This may either retain its natural aspect, or may become very red, soft and black, and, destroyed in its turn, exposes the peritoneal membrane. The bottom of the extensive patches of ulceration at the end of the small intestine, or on the cæcum, frequently present at the same time these several tunics exposed in different points of their extent. In some cases it is possible to trace with the eye the successive destruction of coats from the inner or mucous to the outer or peritoneal surface of the bowel, and from the centre to the circumference of the ulcerated patch. The edges of the ulcer, in such circumstances, present several degrees or steps. The first, most remote from the centre, is formed by the mucous membrane, thin, or thickened, red or white; the second, more internal, is formed by the laminar tissue; the third, still nearer the centre, is occasioned by the fleshy or muscular tissue; and lastly, in the bottom, may be seen the thin, transparent peritoneal membrane,—which in its turn may undergo alterations, becoming more fragile and at length giving way, when perforation of the bowel is the result.

Such is the successive progress which ulcers pursue, that extend in depth; but more frequently, their sole and chief tendency is to spread superficially to the destruction of the mucous membrane only; and in the majority of cases, the bottom or surface of the sore is formed by the laminar or cellular tissue.

As intestinal ulcers may be quickly formed, so they may increase in depth with frightful rapidity. This occurs chiefly in cases of poisoning, in which, at the end of a very short time, the bowels may be perforated. In all such cases, the process of perforation proceeds from within outwards. In other instances it follows an opposite course. When tubercles, for example, arise in the peritoneum, their softening process necessarily destroys that membrane, and exposes the muscular, which in its turn is destroyed, and the bottom of the ulcer is formed by the mucous membrane, which eventually gives way, and perforation is the consequence.

Intestinal perforations may also occur without previous ulceration, in cases in which all the tunics of the intestine are equally softened. The slightest pressure of solid fluid or gaseous bodies is then sufficient to effect rupture or laceration. It is not ascertained whether this result can occur from mere mechanical distension, independent of ulceration or softening. It is known to occur in the stomachs or bowels of herbivorous animals; and Frank quotes facts which appear to demonstrate, that similar rupture may occur in the human subject by accumulation of gas in a circumscribed portion of the bowels. In the same manner, Stoll relates a case of rupture of the bladder, in consequence of unusual distension, by an excessive quantity of urine.

Lastly, Our authors propose, as a subject for inquiry, whether intestinal worms may not in some instances cause perforation, or whether, in the cases in which these animals have been found in the peritoneal cavity, they do not escape through a perforation already made; and to show the possibility of the former, quote the authority of Wepfer, who, in his Treatise on the Water Hemlock, relates, that in dissecting dogs he found in their bowels *lumbrici*, several of which were still living and adhering firmly to the intestine by one extremity like a leech.

But whatever be the circumstances, mechanical or vital, M. Andral continues, under which the intestine has been perforated, its cavity communicates, in consequence of this lesion, either with the outer surface of the body, or with some internal organ, or with the peritoneal cavity.

Of the first mode of communication, or that known under the name of *artificial anus*, the examples are numerous. The edges of the intestinal perforation are united by adhesion to the abdominal *parietes*, and effusion into the peritoneum is prevented. In this manner a ball may penetrate the belly and be voided by stool without proving fatal, and a knife has been swallowed and discharged after some weeks by abscess at the epigastric region, without destroying the individual. Under this head M. Andral has related a good case of abscess of the cæcum, proceeding by gradual steps through the internal iliac muscle, and the muscular walls of the belly to the surface, by the process of progressive absorption, as described by Hunter.

In the second form of communication, in which the cavity of the canal communicates with another organ, the process is likewise accomplished by means of adhesions; and the affected bowel may either open into another hollow organ; or a dense solid body as the spleen, liver, or pancreas, may form a sort of wall to the intestine, and limit the extent of the ulcerative process; or lastly, it may open into the cavity of the chest, by destroying the diaphragm and pleura.

In the third mode of communication, that by opening into the peritoneum, one uniform result follows,—that of peritoneal inflammation, generally very acute, in consequence of the mechanical irritation of the effused contents of the perforated bowel. In some patients the exact moment of this effusion is announced by a peculiar sensation, quickly succeeded by atrocious pains, irregular, very rapid pulse, deadly sinking, and contraction of the features, and every mark of approaching dissolution. The immediate appearance of these mortal symptoms, in persons who some minutes before appeared to enjoy perfect health, proves the astonishing rapidity with which ulcerative inflammation may rise and extend, and with which inflammation of the stomach and bowels, however slight, may all at once become mortal.

When perforation of the intestines occurs in an individual struck with adynamic fever, with loss of strength, and remarkable diminution of general sensibility, it is not in all cases easy to distinguish the peritoneal inflammation which succeeds. In cases of this description, as might be expected, the patients testify no pain, though the belly is strongly pressed, either before or laterally. The sudden alteration of the features, unusual tension of the belly, and the change of pulse, which becomes all at once small and wiry, are the only marks which can lead us to suspect the accident, and its consequent inflammation. These acute forms of peritonitis without pain, succeeding perforation of the bowels in cases of fever, had already been remarked by Morgagni.

To show that the peritoneal inflammation caused by effusion of the intestinal contents may observe a chronic form, M. Andral relates a case, of which the following short outline conveys the principal characters. A young man, labouring under pulmonary consumption, and being subject to chronic diarrhœa, was all at once attacked with acute pains round the navel, aggravated by pressure. After they had continued eight or ten days without any remarkable change, the patient suddenly felt his belly wet with a considerable quantity of fluid, which inspection showed to proceed from a linear opening or fissure at the navel; and in the course of the same day, a lumbricoid *ascaris*, with yellow fluid, similar to that contained in the ileum, escaped. Twenty-seven days after the appearance of the first pains, and eighteen days after the formation of the fistula, death took place, and disclosed traces of dreadful peritoneal inflammation. The intestinal group was united into a single mass by very thick, black, false membranes. A greenish fluid, not abundant, was effused between the intestinal folds, and was kept there by membranous bands, which formed the *parietes* of a multitude of partial sacs. There was no adhesion at the umbilical region. Two lumbricoid *ascarides* found in the peritoneum showed that perforation had taken place; but the adhesions were so numerous and so intimate that it could not be discovered.

Inflammation of the intestines may terminate, as in other tissues, in suppuration and gangrene.

Suppuration commonly takes place at the free surface of the mucous membrane; in some rarer cases, purulent matter forms below this, in the meshes of the laminar tissue, is collected in quantities, and constitutes a submucous abscess, similar to those which are frequently formed in the tonsils. These purulent collections are extremely rare in the subdiaphragmatic portion of the alimentary canal. Our authors have met with one example in the submucous tissue of the duodenum, and resting on its muscular layer; and another, much more extensive, in the stomach of a woman who died of organic disease of the liver and of the ovaries; and though this person had no appetite, it is remarkable that her tongue was natural, and she never complained the whole duration of her abode in the hospital, either of epigastric pain, or of vomiting. In several instances also, they have remarked, in the lower fourth of the ileum, below the inflamed mucous membrane, small white spots of the size of a lentil, formed by a pearl-white fluid, changing place and spreading superficially when the intestine is pressed. This was purulent matter deposited in the meshes of the submucous cellular tissue, and tending to form numerous minute abscesses in all the points where the inflammation had been greatest, and the cellular tissue most distensible. Our authors have seen no example of abscesses said to be formed in the stomach, and discharged by vomiting.

Gangrene of the bowels justly appears to M. Andral much less common than has been long imagined. Of the instances of this lesion, mentioned in various authors, no particular description is given; but it is probable that the brown colour and softening of the mucous tissue, have in general been regarded, in superficial inspection, as proofs of gangrene, when they were, in point of fact, to be regarded as proofs of mere inflammation. It must not be denied, however, that there are diseases in which it is not rare to find, on the inner surface of the intestinal canal, true eschars, like those of the skin;—these diseases are, according to our authors, adynamic fevers. In some instances, these eschars are formed from the laminar tissue, which forms the bottom of the ulcers; and it is then thickened, black, as if it had been charred,—or of a dirty greyish colour, and of a putrid consistence, such as is remarked at the surface of wounds affected with hospital gangrene. In other instances, gangrene is the direct consequence of inflammation of the mucous membrane, and the eschar which results, when thrown off, is followed by a sore. According to the observation of our authors, gangrene appears to be most frequently developed in the centre of the circumscribed raised patches already mentioned. In some instances, they have been able to trace the formation of eschars in their different aspects, or stages rather, in the same subject. They observed, for example, about the end of the small intestine, oblong reddish-brown elevations, formed by thickened mucous membrane; in other parts, some of these elevations converted into a dark substance of yellowish-brown colour, which could not be removed by repeated washing and continued maceration,—compared by many to the eschars formed on blistered surfaces; and in other parts, the mortified slough, already partly detached by insolated spots of ulceration, the bottom of which was sometimes white, sometimes brownish-red, according as inflammation had spread to the cellular tissue of which it consisted. In other patches, the eschar, entirely detached in a single piece, was retained, at one margin, by a thin pedicle or neck only. Lastly, in others no trace of gangrenous eschar could be seen. The end of the ileum and the caecum are the most common situation of these eschars; and, in almost all the instances in which they have been met with, their formation appears to coincide with the mortification of blisters on the skin of the individual. Once only have our authors seen an eschar of this kind in the stomach.

This view of the anatomical characters of inflammation of the alimentary canal, appears to M. Andral to furnish grounds for establishing three degrees of intestinal inflammation, in the same manner as Laennec distinguished inflammation of the pulmonic substance into three several stages. According to the views of our author, the first degree consists in injection more or less perfect and considerable, of the mucous membrane; the second degree is distinguished by alteration of tissue, thickening, softening, or eruptive inflammation, and may or may not extend to the other tissues; in the third degree, the intestinal mucous membrane and the subjacent tissues are disorganized, and affected with ulceration. The two latter degrees of intestinal inflammation may be easily distinguished by their proper characters, which are unequivocal and obvious; the first degree is liable to be confounded with that mechanical injection which takes place during the last moments of life, and continues some time after respiration has ceased, in consequence of the difficulty which the venous blood encounters in returning to the right cavities of the heart, and its accumulation and stagnation in the large veins. The observations of our authors, to enable the pathologist to make a distinction, are too long to be noticed at length; from comparing them with the result of our experience, we should say shortly, that the most certain way of distinguishing inflammation of the intestinal mucous membrane from that which is the result of mechanical injection, will be found in the absence of those general and common marks which show that the whole venous system has been loaded with blood. It is indeed of no great practical consequence; for the first or injected stage of intestinal inflammation, is rarely dangerous or fatal of itself; and the effects of the process will always enable the practised observer to recognise the true cause.

The views of M. Andral, which we have hitherto noticed, may be regarded as explaining the pathological relations of the alimentary canal in a general sense. He then proceeds to show how far they are applicable to explain the phenomena of fever. He asserts, indeed, that the several lesions which he has described, were presented by the intestines of persons cut off by severe fevers. Without stating any objection, therefore, to the idea which our author entertains of the morbid process to which the name of *fever* has been applied, we proceed to the conclusions which our author deduces from his researches.

In thirty-eight individuals, eleven only presented traces of gastric inflammation, sufficiently distinct to warrant the opinion that they influenced the symptoms observed during life. In thirty persons, red patches, eruptions or ulcers, were found in the small intestine; but in fourteen only, these lesions appeared to bear any proportion to the severity of the symptoms. Lastly, in the great intestine, the alterations were more rare and less intense than in the other portion of the canal.

On comparing the lesions observed in the three great divisions of the canal, the following results are obtained. In five patients, (80, 99, 101, 102, 104,) they found the alimentary canal was exempt from every lesion of consequence. In seven others, (81, 85, 94, 107, 109, 110, 113), our authors found lesions too inconsiderable to exercise any effect on the symptoms remarked during life.

In other individuals whose bowels were the seat of more serious morbid changes, these lesions still presented a peculiar character. In some cases this consisted in eruptions of varied form, such as have been already described. In many cases it was evident that these different eruptions had been the origin or commencement of patches of ulceration. In some instances, again, large patches, formed at once by the mucous membrane and the subjacent cellular tissue, were struck with gangrene. The shape and disposition of these patches gave them an analogy with carbuncle *(anthrax)* so close, that our authors propose to term them *internal carbuncles*, or carbuncles of the mucous membrane. In this instance, the formation of ulcers was a consequence of the shedding of the eschars or mortified sloughs.

In the smallest number of cases only did our authors observe a true spreading inflammation of the mucous membrane, analogous to that which appears either in the acute form in man, or in animals poisoned by corrosive agents, or in the chronic form in persons who have expired after long-continued diarrhœa. These several facts our authors esteem of the highest importance to illustrate the nature and treatment of Fevers.

Mesenteric Glands or Ganglions.—In the dissections of the Hospital de la Charité, these bodies were red, swelled, and gorged or distended, in most of the cases in which the corresponding portions of intestine were affected with ulceration. Two questions regarding this morbid state seem to give our author some trouble; first, whether the glands are ever primarily affected; and, secondly, whether this affection is to be ascribed to direct absorption of irritating matter, secreted by the inflamed or festering surface of the intestine. We have no doubt that in all cases, inflammation and swelling of the mesenteric glands depend on the state of the intestinal mucous membrane; and that direct absorption of morbid matter is not requisite to produce this effect. Simple irritation at the organic end of the lymphatics may be propagated along these vessels to the glands which they enter. The same affection of the glands has been remarked by all pathologists in inflammatory diseases of the intestines from Morgagni, Baker and Hunter, down to Petit, and Serres in their account of Entero-mesenteric Fever; and Ballingall and Bampfield, in their dissections of Tropical Dysentery. It is in every case one of the effects of intestinal inflammation.

Liver.—The condition of this organ was altered in three cases only. In two of these its tissue was extremely dense, and in one it had an unusual rose colour. No symptom of hepatic disease appeared. In the third case (117), extreme paleness of its tissue was the only remarkable character. M. Andral states, that they generally found the bile modified in quantity or in quality; but his observations lead to nothing new or very precise.

Spleen.—In most of the subjects inspected by M. Andral, this organ was much increased in volume, and at the same time extremely soft, so that the slightest pressure reduced it to a reddish or greyish pulp, with nothing solid except the outer membrane, and some vascular or fibrous filaments proceeding from its inner surface. In other instances equally enlarged, but less soft, it was filled with an enormous quantity of black blood, which could be easily detached from the proper splenic tissue by pressure or washing. In a smaller number of cases the spleen was found at once very bulky and very dense; in some it was very small, but so dense as to resemble the liver; and in the smallest number of cases, which M. Andral regards as true exceptions, it seemed to retain its ordinary size, consistence and aspect.

The question of the nature of these several changes, and their connection with the symptoms, cannot be said to be greatly illustrated by the researches or reflections of our author. After admitting that these changes in the appearance and properties of the spleen are the most remarkable phenomena of severe fevers, and that enlargement, with modification of consistence, are in these diseases, and especially in intermittent fevers, as uniform as lesion of the alimentary canal, he terminates his inquiries abruptly, by acknowledging their difficulty, while we are ignorant of the functions of the organ.

Pancreas.—The pancreas is most rarely affected. Twice or thrice, however, our authors found it more injected and larger than usual. He adverts, under this head, to the frequency of affection of the parotid gland, but adduces nothing either in the way of fact or explanation worthy of notice.

· *Urinary Organs.*—In one case (100), the mucous membrane of the bladder was inflamed, and in another (105), it was slightly injected. We notice these appearances for the sole purpose of saying, that such inflammation is either accidental, or is the effect of the urine being allowed to continue too long in the bladder,—and either by its change of chemical qualities or its quantity, to become a source of local irritation.

Organs of Circulation.—Flabbiness, paleness, and discoloration of the substance of the heart, were remarked in the greatest number of individuals who sunk under an adynamic condition. Its cavities were ordinarily empty, or contained a small quantity of dark-coloured blood. In three or four cases only they contained fibrinous clots, detached from the colouring matter, but very soft, and charged with limpid serous fluid. The blood contained in the large trunks was also remarkable for its fluidity and deep black colour. In some subjects, the blood contained in the heart and vessels was rose coloured, and resembled water, in which some red-colouring substance had been suspended, while small grains of coagulated fibrine were scattered along the inner surface of the vessels. M. Andral thinks it probable that blood of this description, if submitted to analysis, would prove to consist of water, albumen, a little colouring matter, and scarcely any traces of fibrine. Lastly, in the individual whose history forms Case 91, the fluid contained in the large vessels was in truth no longer blood, but a wine-lee matter, sanious in some parts, and sufficiently like the imperfectly formed fluid which is discharged from bad abscesses. Our authors have examined the inner arterial tunic, and found that it is rarely redder than natural. Inflammation of arteries they regard as a rare occurrence in fever.

Exhalations of blood they have found in the serous membranes of the cranium, of the spinal chord, of the chest, in the subserous, submucous, subcutaneous or intermuscular cellular tissue, and at the free surface of the mucous membranes. In some subjects, for example 115, all these forms of bloody effusion were combined. In some it was serous fluid of a red shade, more or less deep; in some it was a black fluid, quite similar to venous blood at the moment of its emission; in none was any coagulated blood found,—a circumstance which accords with the liquid, uncoagulated state of that fluid in the heart and vessels.

M. Andral closes this enumeration with remarks on the connection between this fluid state of the blood, and the occurrence of hemorrhage in scurvy, putrid, typhoid, and pestilential fevers, and the occurrence of this phenomenon in animals after the injection of putrid substances into their veins. These remarks are not without ingenuity; but as they are speculative, we refer to the work, lest we should misunderstand, and thereby misrepresent the views of M. Andral.

Organs of Respiration.—The pulmonic substance presented, in the dissections of our authors, frequent and considerable alterations. It some instances it was much obstructed by a reddish serous fluid, yet soft and easily lacerable,—still crepitating. In some instances, having become impermeable to air, it presented a brown or livid red tissue, which sunk under the finger like pulp. This pulpy softening of the lungs, which is very similar to certain states of the spleen, remarkable for softness, is observed chiefly in individuals attacked with adynamic fever; and though a peculiar effect of inflammation, analagous to the softening observed in similar circumstances in the gastro-enteric membrane, it must be distinguished from the red or grey hepatisation observed in decided examples of peripneumony.

In ten subjects, our authors witnessed proper red hepatisation. In three only, hepatisation was seated in the right lung, once in the upper lobe, and twice in the lower. In six subjects, hepatisation was seated in the left lung, once in its upper lobe, and in the five other cases, in the lower. Lastly, in the tenth case, both lungs were hepatised—the left in its upper lobe, and the right in its base. In one case only (105), one of those in which the lung was hepatised, our authors observed gangrene of the lung; but the hepatised mass was situate in the lower lobe, and the mortified spot in the centre of the upper lobe, which showed no trace of inflammation. In several of the cases, various spots were passing from red to grey hepatisation.

In three instances they saw an enormous quantity of frothy colourless fluid issue from an incision of the pulmonic substance. This was too abundant to be regarded as a mere effect of cadaverous transudation, and was unquestionably the effect of effusion during life.

In two instances (83 and 103), the *pleuræ* presented albuminous membranous adhesions, without effusion,—unequivocal traces of recent pleurisy. In four cases, blood-coloured serous fluid was found in the pleural cavity, while the membranes gave no trace of inflammation.

From these cases M. Andral thinks it may be inferred that a considerable number of the patients sunk under a complication of pulmonic affection, with fever; and that this complication, favoured by the improper disposition of the ward in which the cases were treated, was a powerful cause of mortality.

Nervous System.—The traces of disease here were few and inconsiderable. In five individuals, the cerebral membranes were much injected, without loss of transparency, and without other change of structure. In two others they had undergone considerable alteration;—in one, a turbid milky serum below the arachnoid; in the other, this membrane very friable, coming away, when raised, in small flakes, with rose-coloured cerebral substance adhering. The cerebral substance was traversed with little red points, more or less numerous, when the meninges were injected; and without this, when the cerebral veins were gorged with blood. The researches of our authors have added nothing to our knowledge of the connection between the diminution or increase of the consistence of the brain, and the symptoms of ataxic and adynamic fevers, nor on the state of the spinal chord, or its influence or condition during the process of fever. In two instances of persons who died in 1819, with ataxo-adynamic symptoms, the semilunar ganglions were remarkably red. One of these had, during the last forty-eight hours of his life, violent trismus, and tetanic rigidity of the upper extremities. They have met with nothing like since that time.

Such is a short view of the principal results obtained by M. Andral, in dissecting the bodies of persons cut off by fevers, either bilious, mucous, adynamic, or ataxic. We have detailed these results in the same order in which they are stated by our author, and without commentary, remark, or criticism, that our readers may have a correct idea of the positive value of the researches of M. Andral. But if we leave our author in this manner, it may not unreasonably be imagined, that we either adopt implicitly all the conclusions which he has, in different parts of his work, derived from these dissections, or that we are unwilling to depart from that reserve which equally influences those who doubt, and those who will not admit conclusions at variance with previous opinions. We shall very shortly state what we conceive it to be requisite to say on this subject.

Our readers are certainly not now to be informed, that a very bold innovator in the Parisian school of medicine has already, for some years, announced a new doctrine on the theory or proximate cause, as it used to be termed, of those diseases, to which physicians have given the name of Primary, or Idiopathic, or Essential Fevers. Our readers must also well know what incessant changes and revolutions have taken place, not only among medical opinions, but even in medical practice, on this subject; and that such is the nature of theory or hypothesis, which in this instance we shall not attempt to distinguish, that the doctrines which this year appear certain and irrefragable, will probably, ere the revolution of many moons, become stale and unprofitable, and finally be mentioned only to be ridiculed. Cullen's spasm of the extreme vessels was considerably supplanted with many, for a short time, in this country, by the sthenic and asthenic dreams of Brown; and Darwin modified this, in his own way, into circles of associate motions and sympathy direct and reverse. When the physicians of this country had nearly recovered from these hallucinations, Dr Clutterbuck revived a theory, which had been originally proposed about the middle of last century by Marteau de Grandvilliers, and was more fully explained in 1800 by Ploucquet of Tubingen; and Dr Beddoes, with much learning and good sense, distinguished its best and truest parts, and laid before the profession the evidence of their truth. This theory had the good fortune to coincide with the pathological views of several eminent practical authors, who about the same time published on fever and febrile diseases, especially Jackson, Irvine, and Sutton; and at no long time valuable practical comments on continued fever, as it occurs in this country, were given by Mills, Stoker, Percival, and Bateman.

Though the views which the several researches of these authors have thrown open, are undoubtedly much nearer the truth than any hitherto proposed, many physicians of sound practical opinions were beginning to abandon them entirely, and to think that the search for the proximate or pathological cause of fever, was very nearly as difficult, if not as chimerical, as that for the philosopher's stone. This relinquishment of theory, however, is impracticable; and every one who knows the constitution of the human mind, is aware, that whatever professions of untheoretical views are given, are necessarily incapable of being realized, and will manifest themselves in one way or other. The human mind naturally clings, in all obscure and unintelligible processes, to something like an explanation; and it is quite as impossible to avoid theorizing about the causes of such processes, as it is impossible to avoid thinking. The man who disavows theory, and especially in medicine, is either a rash, thoughtless, and insane empiric, or is utterly ignorant of what he ought to know well,—the laws of human thought,—or is at best a hollow and specious deceiver. The great point is to distinguish good theory from bad,—and to possess judgment sufficient not to speculate farther, or with greater freedom, than well-ascertained facts permit. This it is the wish of all to do; and few are so little satisfied with their own discernment and reasoning powers, as to imagine that their own is not the truest and most rational method of accounting for those phenomena, which have exercised the ingenuity of some of the most powerful intellects of which the history of medicine can boast.

Broussais, who appears to have been equally dissatisfied with all theories of the proximate cause of fever, whether ancient or modern, whether mechanical, chemical, or physiological, and with almost all nosological views of this disease, contends that there is no such thing as essential or idiopathic fever;—or, at least, he does what is equivalent, by asserting, that the assemblage and train of symptoms to which physicians give the name of Fever, depends, in all cases, on inflammation, or inflammatory disorder of the gastro-enteric mucous membrane. "All the *essential* fevers of authors," says this writer, in his Pathological Propositions, "may be referred to *gastro enteritis*, simple or complicated; and acute examples of this inflammation, in its aggravated form, all proceed to stupor, insensibility (*fuligo*), lividity, fetidity, and prostration, and represent what has been called *typhus*, putrid, or adynamic fever; and those in which the irritation of the brain is considerable, whether it amounts to inflammation or not, produce delirium, convulsions, &c. and take the name of malignant, nervous, or ataxic fevers." * The idea of fever depending on a local irritating agent, is not new; but advanced and elaborately maintained by Broussais, it was vigorously opposed. We do not pretend to say which party is right, or which is wrong; but it would have been wise to submit the questions at issue to the test of patient investigation, by observing the phenomena of fever in the living body, and attempting to trace its causes, as well as its effects, in the dead. This wise course has been pursued by M. Andral; and the account which we have above submitted is the fruit of his researches. To our author alone belongs the merit of submitting the opinions of M. Broussais to an impartial inquiry, and, without expressing any sentiment of their rectitude or error, of showing to what extent they are confirmed by the most certain of all evidence, in questions of medical theory.

These researches have shown that the doctrine of Broussais is partly right and partly wrong, and requires to be modified considerably ere it can be admitted in any manner. There is no doubt that, in many fevers, the characters of which we shall notice presently, the gastro-enteric membrane is either inflamed diffusely, or in circumscribed patches, or in minute points, or is in a state very closely allied to inflammation. It must not be forgotten, however, that these fevers are utterly different from those we see generally in this country, and from those which have been described by practical authors under the names of Continued Fever, Nervous Fever, Jail Fever, or Malignant Hospital Fever. It is a remarkable and interesting circumstance in the history of the fevers observed at La Charité, that most of them commenced with diarrhœa or frequent loose stools, or this symptom appeared very soon, and continuing more or less during the whole course of the disease (431.),—after fifteen days or three weeks, exhausted the powers of the system, and was succeeded by the adynamic symptoms; and it is equally remarkable that the intestines of individuals attacked with such symptoms, presented evident traces of inflammation. (p. 427.)

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* Examen des Doctrines Medicales et de Systémes de Nosologie, &c. Par F. J. V. Broussais. Propositions de Medécine, cxxxviii. cxxxix.

If we carry our inquiries to proper length, and conduct them with sufficient accuracy, we find that these characters of intestinal disorder belong particularly to the fevers of Paris, and perhaps to those of other places of the Continent. The disease which has been described by French and other foreign physicians, as Bilious or Mucous Fever, (*Morbus Mucosus* of Roederer and Wagler), is a fever with marked affection either of the gastric mucous membrane, or of the intestinal mucous membrane, or of both together. We learn from Pinel, that he observed an epidemic of the former in the Bicetre in 1795, and that he frequently saw it in the remittent form in the Salpetriere. In the same manner he informs us, that all the quotidian and quartan agues, and most of the tertians and double tertians observed at the latter hospital are mucous or pituitous fevers, or attended with sickness or vomiting of mucous matters, or, in other instances, with griping and loose stools.

In addition to this fact, it is to be remarked, that affection of the intestinal mucous membrane is so common in Paris, that it may be regarded as endemial to the city; and though it may not appear conspicuously in the persons of the inhabitants, unless at certain seasons, strangers are almost invariably attacked with diarrhœa more or less severe, shortly after their arrival. Some ascribe this disordered condition of the intestinal membrane to the water of the city, others to its situation, and others to the mode in which the inhabitants live. The remote causes are of no consequence, providing the fact be established; and this we conceive to be the natural conclusion of the researches of various observers ancient and modern,—but especially of M. Prost in 1803, Laffore and Bayle in 1810, Petit and Serres in 1811, and subsequent years, and Andral in the work now before us. The pathological cause of this disorder consists in spreading inflammation of the mucous surface, chiefly of the ileum.

Broussais indeed had early announced in his work on the Chronic Inflammations, and subsequently maintained in his doctrines on the pathology of fever, the opinion,—that diarrhœa or dysentery depends on inflammation of the colon only. This opinion is now known to be destitute of foundation, not only by the researches of Andral, but by those of Petit and Serres, who proved satisfactorily, that diarrhœa or dysenteric symptoms even depend, in most cases, on inflammation of the mucous membrane of the ileum. The attention of these physicians was called in 1811-12, and 13, in the Hotel Dieu, to cases of fever, which commenced with frequent loose stools, and continued for two, three, or even four weeks, without much abdominal pain, sometimes without very rapid pulse, till the last week of the disease, with little affection of the senses or mental faculties, till the conclusion, and with gradual approach of muscular and general weakness, till the fatal event. In the bodies of persons cut off by this disease, which simulated ordinary fever, unless in the diarrhœa with which it was attended, the inner or mucous surface of the ileum especially at its lower end, was inflamed, or abraded by inflammation, or presented ulcerated patches various in extent. The enlargement of the mesenteric glands which was observed to attend this affection, and from which the disease was named Entero-Mesenteric fever, was merely the result of intestinal inflammation. This disease was at first supposed to be ordinary bilious or mucous fever, till dissection showed the difference. On the question of the source of this fever, Petit justly remarked in 1811, that it had already been known to prevail at least for eight years,—a period too long to ascribe it to the operation of epidemical causes; and as the same remark is applicable with greater force in 1824, the evidence to show its endemial character, as a native of Paris at least, is conclusive and satisfactory. Lastly, it may be regarded as one of the legitimate conclusions furnished by the researches of M. Andral, that the opinion expressed by Petit and Serres on the cause of diarrhœa was correct; and that inflammation of the mucous gastro-enteric membrane, and consequent diarrhœa, is a frequent disease in Paris, and may be complicated or combined with symptoms of mucous or bilious fever, which, on the conclusion of the disease, may assume the adynamic or typhoid appearance.

The main question, however, on which this inquiry entirely hinges, is, whether inflammation of the intestinal mucous membrane will give rise to the symptoms of continued fever; and whether these symptoms ever exist without this form of intestinal inflammation.

On the first of these points, we believe it cannot be denied, that mere intestinal mucous inflammation never does give rise to the proper symptoms of the disease described by practical authors under the name of Continued Fever. It would not be difficult, if this were fit season and place, to show, that this disease, however similar in its commencement to other maladies of febrile or inflammatory character, quickly manifests its proper symptoms and phenomena; and if, at its termination, it assumes all the features of the low or nervous, or typhoid or adynamic state, the same, it may be remarked, may be asserted of many other diseases equally inflammatory in their nature. Most inflammatory and febrile diseases commence and terminate much in the same way; and it is only when the disease is fully established that its distinctive character appears. Gastric inflammation will, at this period, be manifested by squeamishness, loaded tongue, and retching or vomiting of thickened mucus; and intestinal disorder by frequent loose stools, chiefly of mucous, sero-mucous, or muco-feculent matters; but neither will give rise to the intense throbbing headach, flushed countenance, and muddy eye, or the intolerance of light and sound of the early stage,—nor the leaden oppressive look, or the raving or stupor of the latter stage of continued fever.

Many observers, and, among others, Broussais, Petit and Serres, and Andral, have been much perplexed with the trifling degree of pain manifested by the inflamed gastro-enteric membrane; and have justly dwelt on the circumstance, that pressure of the belly does not in all cases produce uneasiness to the patient. "*Gastro-enteritis*," says Broussais in his hundredth and thirty-sixth aphorism, "exists without any painful point, when the inflammation is not vehement in the stomach and duodenum; and pressure of the belly does not even cause pain." The testimony of Petit is in some sense a modification of this statement. In such patients," says he, "before the great symptoms were developed, the belly was pliant and soft, without meteorismus, and with little or no spontaneous pain of the part;" but, continues he, "if the belly was pressed a little deeply at its lower part, especially toward the right, between the spine of the ilium and the navel, the patient manifested the pain which he there felt by complaint; and independent of which, this sensation became evident by involuntary retraction of the nostrils, and expression of pain over the whole countenance." * "Nothing is more common," says Andral, "than the absence of every sort of pain in cases, in which numerous ulcerated spots cover the inner surface either of the ileum, or of the cæcum, or of the colon; and it is frequent, on the other hand, to see patients complaining of keen abdominal pains, though the gastro-enteric mucous membrane is not inflamed." (p. 429.) Part of this ambiguity depends on the inaccessible site of the affected membrane, and part on a proper or natural low rate of sensibility in certain forms of inflammation. The truth is, that if the membrane be diffusely inflamed, it is not attended with acute pain; for it is a fact so general that it may be converted into a pathological principle,—*that a mucous membrane, if placed in a situation,*

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* Traite de la Fiévre Entero-Mesenterique, p. 131.

where it is not confined, does not become acutely sensible in proportion to its degree of inflammation. In such circumstances, for example in the case of the intestinal mucous membrane, if the finger be carried steadily down so as to press on the bowels at various points, and force their opposite sides to meet, some degree of pain, often considerable, will be experienced by the patient. The absence of pain or tenderness, on slight pressure, is easily understood in this disease. It is not the outer or most accessible part of the bowel that is affected by pressure in such a case, but the inner and most remote.

On the second point, we think the whole resolves itself into a question of individual opinion and experience of the local peculiarities of fever. If the Parisian physicians attach to this term the same idea which most of our practical observers and pyretologists have done, we think it undoubted that the symptoms of that disease exist, independent of inflammation of the mucous membrane of the intestines. We know at all events, from personal experience, that continued fever, as it occurs in this city, does most certainly exist without any symptoms of the kind. It is rare, very uncommon indeed, to see continued fever either introduced or accompanied with diarrhœa; and though we have seen, in a few dissections, slight affection of the mucous membrane of the stomach, and occasionally very slight affection of the ileum, sometimes of the cæcum, we never regarded these as of sufficient importance either to explain the phenomena, or illustrate the nature of the disease. Every one knows that the prominent symptoms of fever as it occurs in this country, consist in headach more or less intense, pain and weight of the eyes and temples, throbbing of the head, with sudden and extreme loss of power in the voluntary muscles, in the early part of the disease;—and stupor, coma, epileptic, tetanic, apoplectic, or paralytic symptoms in its latter part; while the dissections in general unfold such appearances in the brain or its membranes, as afford something like a reason for these symptoms.

The great difficulty, however, with dissections of cases of fever consists in this,—that they show the *effects*, not the *causes*, of the morbid process in which fever consists. As death takes place only when this process has rendered the organs unfit for the continuance of life, we can rarely discover what is going on in the substance of the several organs during the first days of the disease. Till the ambiguity arising from this fallacy is dissipated, we cannot expect to distinguish causes from effects in dissecting persons who have died with symptoms of fever. This difficulty, it must also be remarked, applies equally to the theory which ascribes the symptoms of fever to inflammation or bloody congestion of the vessels of the brain, and to those which ascribes them to gastro-enteric inflammation, or even to any other local disorder; and while we cease not to remember that physicians are still obliged to refer to the same pathological head, such opposite diseases as yellow fever and ordinary ague, common continued fever and jail distemper, and in some instances plague, it is not easy to understand by what train of reasoning a local affection seemingly so easily recognised, and generally very uniform in its characters, should be the invariable source of diseases so opposite. Fever is certainly a morbid process of the living body, consisting not only of simultaneous but of successive phenomena; it is not only an assemblage, but a train of actions. What the mechanism is by which these actions are connected,—which is the initial or generative point, and which the terminal or produced, has not yet been satisfactorily ascertained; and it is doubtful whether we shall ever discover it by merely looking at the last of the whole series of actions.

IV.

An Elementary System of Physiology. By John Bostock, M.D. &c. London. 1824. Vol. I.

This is the commencement of a work intended to supply an important defect in the Medical Literature of England. Our countrymen have of late years been more distinguished for the zeal with which they have cultivated the science of Physiology as a subject of original investigation, and for the discoveries with which they have consequently enriched it, than for the general knowledge of it diffused throughout the profession. This will appear from the character of the numerous dissertations sent forth daily by the press on the practical departments of medicine; dissertations which appear to be dictated by a spirit of pure and often credulous empiricism, rather than chastened, as they should be, by the habits of reasoning, and the general views of the animal economy, which the study of its functions connectedly is so well fitted to impart. This deficiency of physiological knowledge among medical men in Britain, arises in a great measure from the insufficient regard paid to it in our schools; where it is almost always taught either in conjunction with other subjects of equal importance and extent with itself, or as a branch subordinate merely to another science. But it must be confessed, that the English student has also been long placed in circumstances very unfavourable to the acquisition of modern physiological knowledge, by the want of a general treatise on the subject in his own language. This want, indeed, was in part supplied a few years ago, by the translation of Richerand's Physiology; and more recently by an excellent translation of the admirable work of Magendie by Dr Milligan of this place. But a good deal was still left for an original English writer to accomplish. For, independently of the superior authority possessed by an original work, and consequently the wider extent of its circulation,—we had to look to such a work for a more accurate and extended account, than either of the French physiologists has given, of the recent labours of our own countrymen, and likewise for a fuller detail of the progress of physiological investigation, and a more specific assignment of the grand facts and doctrines of the science to their individual discoverers. We need not dwell on the qualifications possessed by Dr Bostock for executing such a work as we allude to. He has been long before the public as an author in various departments of medicine, and particularly in those which form the groundwork of physiological science; and we have no doubt that the public are quite ready to receive this new effort of his pen with the favour to which the accuracy of his former researches and his general celebrity fully entitle him. He appears to us to be eminently successful in following out the plan which he has laid down for himself; namely, to furnish the student with "an elementary treatise, embracing an account of the most important facts and observations, as well as of those theories and hypotheses which have been the most generally received, or have been sanctioned by the authority of the most eminent names." The reader, therefore, must not expect to find a minute detail of facts in the present work; but rather an inquiry into the principles of the science, with such an account of its leading facts as is necessary to unfold the doctrines of which they are the foundation.

One of the most striking excellences in the work is the history which is given, under each subject of inquiry, of its gradual progress from age to age, and of the views which have been taken of it by the different medical sects and eminent individuals who have contributed to its advancement. This outline is uniformly drawn with great conciseness and perspicuity, and likewise with the most scrupulous regard to the claims and merits of discoverers. The author has also excelled in bringing down each subject to its exact condition in the present day, in stating the precise amount of our present knowledge regarding it, and in pointing out how far that knowledge can fairly support the conclusions which have been founded on it, and wherein it is defective and open to farther investigation. On the disputed facts and doctrines of the science (which are unfortunately still too numerous), the sentiments of the different parties are stated with great clearness and perfect candour; and his own opinions are delivered with much judgment, though perhaps sometimes with too great decision. Not the least valuable part of the work, and that which eminently distinguishes it from the popular works on Physiology published of late in France, is an ample list of select references. No fact of any moment is used in the text without a notice of the authority for it, and the place where it is recorded. These references, too, while they are select, are sufficiently comprehensive to enable the student to examine any subject to the bottom; and nevertheless there is nowhere the slightest glimmering of the mere ostentation of learning.

Having made these preliminary remarks on the general features of the work, we shall now present to our readers a short account of its contents, rather with the view of inducing them to resort to the original, than with the hope of transferring to our pages any part of the vast store of information which Dr Bostock has accumulated and condensed, beyond the possibility of farther analysis.

He sets out, according to rule and usage, with a sketch of the history of physiology, commencing with the physiological writings of Hippocrates, Aristotle and Galen, then proceeding to the doctrines of the chemical and mechanical physiologists at the time of the revival of letters, and ending with a minuter account of the tenets of the Vitalists, as introduced by Stahl, and afterwards successively modified by Hoffmann, Boerhaave, Haller, Cullen, Hunter, and Bichat. We are happy to find, that in this sketch the ancients have been treated with no more than the share of respect to which their insignificant contributions in physiology entitle them.

He then proceeds to observe, as introductory to the plan of the work, that all the actions peculiar to the living system may be referred to the two principles of *Contractility* and *Sensibility*, the one residing in the muscular fibre, the other in the nervous tissue; and therefore proposes to treat of the various functions of the body under the two great divisions of *Contractile* and *Sensitive*. But he previously introduces a preliminary dissertation on the organs by which these two principles are exercised, namely the muscles and the nerves; and this dissertation again is ushered in with an account of membrane and bone, "because, without some knowledge of their nature, it would be difficult to comprehend the operation of the muscles and nerves, or the connection they have with the system at large." The reader will already perceive, that his plan of arrangement is in some respects forced and unnatural: But more of this hereafter.

Under the head of *Membrane*, he sets out with an exposition of its extent and general diffusion, of its uninterrupted continuity, and of the opinions entertained of its mechanical structure by Boerhaave, Haller, Ruysch, Hunter, Fontana. We have noticed, in our Medical Intelligence for last July, some further inquiries on the subject, with which Dr Bostock was of course unacquainted at the time he composed this part of his treatise, and which confirm and extend the views entertained by Fontana. Our author next proceeds to mention the properties of membrane, and discards all those assigned to it by physiologists, excepting cohesion, flexibility, extensibility, and elasticity; to which last he is disposed to refer all the phenomena which Bichat and Richerand have ascribed to a species of sensibility and contractility, Blumenbach to the *vis cellulosa*, and the Stahlians to tone or tonic power. This opinion he appears to us to have established by valid reasoning. In the course of the discussions to which he is led by the foregoing criticisms on his predecessors, he introduces some interesting metaphysical remarks on the nature of *organization*, and the various meanings which have been attached to the term. He has been, upon the whole, successful in discriminating these meanings; yet we suspect that he has nevertheless confounded them again a little when he afterwards draws the distinction between organized and unorganized matter (p. 43.) Next follows an account of the chemical composition of membrane, and of the physiological relation which its proximate principles, fibrin, albumen and jelly, bear to each other.

After these remarks on membrane generally, he goes on to the consideration of its varieties, which he considers to be the cellular tissue, mucous membrane, serous membrane, tendon and ligament, cartilage, skin and its appendages, nails and hair. Under each of these heads he gives a succinct and comprehensive account of their structure, properties, chemical composition, and uses.

Under the head of Bone, following nearly the same course as with regard to membrane, he treats first of the form and mechanism of the bones, next of their mechanical structure, according to the opinions of Malpighi, Duhamel, Herissant, Gagliardi, and Bichat, then of their chemical composition, then of their formation, and lastly of their connexion with the living system. With regard to their mechanical structure, he agrees with most modern physiologists, in opposition to Bichat, that although they cannot be considered as formed of concentric rings of earthy matter, as Duhamel imagined, yet that the membrane of bone is composed of plates, like the cellular tissue, between which the earthy matter is deposited. His observations on the production of bone are interesting, and, so far as they go, comprehensive; but we expected to have found more use made of the recent researches of the French on osteogeny. When noticing the connexion subsisting between bone and the rest of the system, he is led to discuss the question of its vitality, which of course he decides in the affirmative. But he attaches no weight to the fact (often adduced in support of that opinion) of bone causing pain when inflamed; because, in the case of inflamed bone, as well as inflammation of membrane, the sensation probably arises not from nerves sent to the bone itself, but from the nerves of contiguous parts being pressed upon, and irritated by its increased bulk and firm texture. A much better proof of its organization and vitality he considers to be its continual absorption and reproduction, of the existence of which no doubt can be entertained.

The next subject, that of *Muscle*, he considers under six heads,—its form and structure, its chemical composition, its properties physical and vital, its use, its mechanism, and lastly, the hypotheses formed to explain its action. Under the first head he notices the researches of Leeuwenhoek, Muys, Borelli, and Stewart, relative to the nature and distribution of the ultimate fibre of muscle; then the opinion of Hooke and others, who believed it to be composed of nothing else than groups of minute vessels; next that of Cullen, who thought that the muscular fibre was a mere continuation of the nervous texture; and finally, the more accurate microscopical observations of Haller, Fontana, Prochaska, Carlisle, and Bauer. To these we must likewise add the observations of Dr Mylne Edwards, and Messrs Prevost and Dumas, noticed in our two last Numbers. The researches of these gentlemen and of Bauer agree in assigning to the muscular fibre a structure made up of globules, about the same diameter as those of the blood, and arranged in straight lines. Under the head of the Chemical Composition of Muscle, Dr Bostock notices briefly the singular effects produced by nitric acid on fibrine, as examined by Fourcroy, Vauquelin, and Berzelius, and its conversion into adipocire, as first ascertained by Thouret and Fourcroy. He next proceeds to treat of the important but difficult subject of the properties of muscle. He sets out with discarding the property denominated tone or tonicity by Whytt, Cullen, Bichat, and others; and has referred the phenomena said to be produced by it, to mere elasticity. We doubt much whether elasticity will account for several of the actions attributed by these physiologists to tonicity. He then passes to the consideration of the *Contractility* of Muscle, a term which, in common with all physiologists of repute, he substitutes for the vague expression Irritability. Here he first states the various arguments relative to the change in bulk caused by muscular contraction; then gives an outline of the various theories regarding the nature of muscular contraction; and concludes with a few general remarks on the various kinds of stimuli. Next follows a short inquiry on the mechanism of the muscles; including an account of the kind of power employed in the movements they effect, and the advantages and disadvantages connected with it; and some remarks on the force, velocity, and extent of their contraction. The subject of the muscles is then concluded with an elaborate analysis of the various hypotheses invented to account for their contraction, and for the cause of contractility. Under the first of these topics, or the cause of muscular contraction, the author notices the hypotheses of Borelli, of Stewart, of Keill, of Valli, and those more recently suggested by Prochaska and Sir G. Blane. We must also add to the list the most recent of all, proposed by Messrs Prevost and Dumas, of which an account was given in our last Number, and which is a modification of the galvanic hypothesis of Valli. On the cause of contractility itself, many hypotheses have likewise been suggested in the different ages of physiology. All those of any importance have been analyzed by our author, and described with great perspicuity.

The last topic introduced into the preliminary dissertation, is an account of the structure and vital properties of the nervous system. It is discussed under four sections. In the first section he gives a short sketch of the general structure of the brain, nerves, and ganglia; of the peculiarities of the cerebral circulation; of the observations and opinions of Prochaska, Wenzel, Bauer, Sir E. Home, Fontana, Monro, and Reill, on the microscopical structure of the brain and nerves, and of the researches of Thouret, Fourcroy, and Vauquelin, respecting their chemical relations.—In the second section, he treats of the vital properties of the nervous system, and their mode of operation. Here he commences with an explanation of some of the terms employed to denote its properties, with a most laudable desire to settle the meaning of these terms, and, if possible to improve our nomenclature. We apprehend Dr Bostock has erred not a little in deviating from the import attached to them by metaphysicians and other British physiologists. The word " Sensation," says he, "is generally used to express the effect produced on the sensorium, by an impression transmitted to it by a nerve, whereas it will be more convenient to extend it to *all the actions of the nervous system;*" and then he goes on to mention, that in this new acceptation, it will include the *organic sensibility* of Bichat, together with various other terms employed by recent physiologists to denote the same property; and consequently, that it may or may not be accompanied by "an effect on the sensorium." Our limits will not permit so full a disquisition on this and other alterations suggested by our author, as their importance would require. But we must deprecate such uncalled for interference with the nomenclature now generally acknowledged and well understood by British metaphysicians, and would beg to suggest to Dr Bostock's consideration, whether it would not be more prudent, if a term must be found to express what he desires, that he venture at once to coin a new one, rather than stamp a new meaning on one already in general use. We may also request him to consider again the import of the term *Perception*; for it does not appear that he attaches to it its true signification in modern metaphysics. After these remarks on the terms, he proceeds to notice the mode in which the two great operations dependent on the nervous system, namely, sensation and volition, are effected, and under that head treats of Descartes's hypothesis of the nervous fluid, of Hartley's hypothesis of vibrations, and finally of the electric hypothesis advanced in modern times.—The third section treats of the use of the nervous system, of the existence and seat of the sensorium, of the seat of volition and perception, of the question, whether the *sensorium commune* be seated in a particular part of the brain, of the uses of the different parts of that organ, of the relation beween the superior intelligence of man over the lower animals, and certain peculiarities in the structure of his nervous system, of the uses of the spinal cord, and of the ganglia.—The fourth and last section contains an interesting and able investigation relative to the connexion between the muscular and nervous systems, being a statement of the dispute which has been long carried on between the Hallerians and Neurologists, whether or not the contractility of the muscular fibre is dependent on the nervous energy. Dr Bostock has stated the arguments on both sides with perfect candour, and in a most luminous order; and he concludes by ranking himself among the Hallerians.

Having thus given an account of the two great attributes of animal life, Contractility and Sensibility, and of the organs by which they are exercised, our author concludes the preliminary matter of his work, by giving a plan of the animal functions, as depending on the exercise of these powers, and therefore divisible into the two great classes of Contractile and Sensitive functions. The former, or the contractile functions, have for their essence *motion;* they are circulation, respiration, calorification secretion, digestion, absorption, and generation. The essence of the sensitive functions consists in *sensation*, according to the wide meaning attached by him to that word; and in this class are included the five senses, the sensations of hunger, heat, cold, &c. and instinct, volition, association, sympathy, habit, and some other faculties of a similar kind. To these two classes is added a third, consisting of the Intellectual functions, which to a certain extent are legitimate objects of physiology. And thus Dr Bostock completes his physiological system.

We have already hinted, that his plan of arrangement is rather forced and unnatural, and we apprehend the reader will now perceive the truth of this assertion, without much comment on our part. It cannot be properly said, for example, that the essence or even chief feature in the function of respiration is motion. Although in man and many animals, the movements of the chest, effected by the thoracic and abdominal muscles, is to the eye the chief phenomenon of respiration, it certainly does not constitute its essence; for respiration may be carried on, and in some animals is carried on, without it. Neither is it apparent upon what grounds the function on which depends the production of animal heat, or the function of generation, can be referred to a class of which the essential character is the exercise of the vital property, contractility, and its consequence motion. As to our author's second class, we apprehend that he may be charged with employing vague or incorrect expressions when he talks of such functions as the sensation of hunger, temperature, &c.; and that it may be questioned, whether association, habit, and some other faculties included in the same class of sensitive functions, are not rather of an intellectual nature. On the whole the most natural classification appears to be that, followed with slight variations in language merely, by Magendie, Cuvier and other late French physiologists; and which considers the functions as belonging to the great classes of Relation, Nutrition, and Generation. But it is fortunate, that although the classification of the functions may be logically inaccurate in an abstract point of view, yet it is scarcely possible to frame one, whose parts, when treated in detail, do not follow each other in a natural order,—a circumstance which of course depends on the intimate connection that subsists between all the important functions.

Of the subjects enumerated by Dr Bostock in the foregoing arrangement, the only one he is able to overtake in the present volume is the Function of the Circulation. After a few remarks on its connexion with the other functions, and particularly its relation to those of the brain, he treats of the heart and its appendages; of the course of the blood through them; of the discovery of the circulation, and the arguments which prove its existence; of the mechanism of the heart, that is, its size, force, strength, and power of expulsion, change of figure during contraction, and the cause of external pulsation; of the fœtal circulation—its mechanism, and the uses of the fœtal appendages; of the comparative anatomy of the circulatory organs. He then passes to the consideration of the vital properties and actions of the heart. Here he sets out with observing, that, though the heart is supplied with nerves, it has little or no sensibility (deviating evidently from the meaning he previously attached to that term); and that the use of its nerves may probably be to indicate its diseases, and to contribute to the expression of the mental emotions. He then takes notice of the peculiarities in the other great vital property possessed by the heart, viz. its contractility. These are, constancy of motion, and regularity of action. After noticing the various theories proposed to explain these peculiarities, he proceeds to consider the action and properties of the blood-vessels. The first object of consideration is the much-agitated question of the contractility and muscular structure of the arteries. Dr Bostock espouses the affirmative side of the question, and has argued it with much ability. This topic leads him to notice the cause of the pulse, which he considers, with Parry, to arise neither from dilatation of the vessels, nor from displacement or unbending of them, but from "the impulse of distention given by the blood as it passes through any part of an artery contracted within its natural diameter." The efficient causes of the circulation next come under notice; and they are shown to be contraction of the heart, contraction of the vessels, especially the capillaries, and compression of the veins by the muscles when in a state of action. The elasticity of the arteries, which has been assumed by some physiologists as a moving power, he very properly affirms to be merely the means of diffusing and equalizing power, not of generating it; and with equal justice he takes the same view of the power attributed to *derivation*, or the impulse given to the venous blood towards the heart, by the dilatation of the auricles. As to the influence of suction produced by the lungs being in a forced state of distention, as represented by Dr Carson, he considers its existence very questionable; but defers the examination of the question till he treats of the properties of the lungs themselves.

The next topic is the estimate formed by various physiologists of the force of the heart, which he is disposed to assume as approaching to the estimate made by Hales. The subject of the circulation is then dismissed, with a few general remarks on its state during inflammation, and the theories which have been proposed regarding the cause of inflammation.

To the foregoing Inquiry into the Function of the Circulation is affixed an Appendix on the Physiology of the Blood. It is introduced with a sketch of the progress of animal chemistry, and a relation of the advantages derived in this branch of physiology from the modern methods of analysis. Then follows an account of the nature and properties of blood; its coagulability, the phenomena which accompany its coagulation, and the circumstances which affect it; the nature of the halitus; the life of the blood; the cause of the buffy coat; the part performed by the blood in the reunion of divided parts; the structure and size of the red particles, and their chemical relations; the cause of the colour of the blood; the chemical properties of the serum; the composition of the serosity, or serum deprived of its albumen; the use of the saline matters of the serum; the difference between arterial and venous blood. And the volume ends with a statement of the humoral pathology, and of the theories formed concerning the nature of the blood, from the time of Galen downwards.

This Treatise on the circulation furnishes a characteristic and prepossessing specimen of our author's mode of investigating the functions, and, we have no doubt, will induce the public to await with eagerness the continuance and completion of his work.

V.

An Essay on the Blood, comprehending the chief Circumstances which influence its Coagulation; the Nature of the Buffy Coat; with a Concise View of the State of the Blood in Disease; and an Account of the Powers of a Saturated Solution of Alum, as a Styptic Remedy in Hemorrhage. By CHARLES SCUDAMORE, M. D .F. R. S., &c. 8vo. pp. 162. London, 1824.

We have to apologize to our readers for not taking earlier notice of this little work. It is announced by Dr Scudamore as the forerunner of a more extended dissertation on the same subject, which he undertakes to prosecute more fully if his present Essay should meet with a favourable reception. We have to congratulate him on this offer having been warmly accepted by the medical public, and presume that he does not need any additional encouragement from us to fulfil his part of the bargain. We shall therefore proceed at once, without any general comment, to lay before our readers an analysis of his observations and discoveries.

He commences with a short account of the composition and chemical relations of the blood, adopting the text of Mr Brande's Manual of Chemistry, and adding an occasional comment. In this preliminary sketch the only thing which requires special notice is a small addition, made by Dr Scudamore, to our knowledge regarding the composition of the red globules, and the cause of their colour. It is well known that Berzelius, one of the latest investigators of the subject, attributes the colour of the blood to iron, which he has found to form about a 160th part of the globules; but that Mr Brande, who likewise has recently made experiments of the same nature, could find nothing more than a trace of iron, and ascribes the colour of the blood to "the removal of a portion of carbon and hydrogen from that fluid," and the varieties in its tint to "modifications of animal matter, and not to different states of oxidizement of iron." Dr Scudamore has endeavoured to detect iron in the colouring matter of the blood, first by subjecting to magnetism the residuum of the clot, dried at the temperature of 212°, and afterwards by incinerating it, treating the ashes with hydrochloric acid, precipitating the solution so formed with ammonia, redissolving the precipitate in hydrochloric acid, and then testing the new solution with the usual reagents. By the first mode he could not detect the existence of a single atom of iron. By the second process its existence was demonstrated distinctly; and his experiments lead him to infer, that the quantity of iron is intermediate between the proportions assigned by Brande and by Berzelius, but nevertheless quite insufficient to account for the colour of the blood. We apprehend no doubt can now be entertained that the colour is owing to some animal principle, not to iron; although, at the same time, on account of the impossibility of procuring it apart from the other elements of the blood, little or nothing is yet known of its nature.

Dr Scudamore then proceeds to the proper subject of his Essay, and treats in succession of the circumstances which affect the coagulation of blood, and the phenomena which accompany it when variously influenced by them. Thus he is led to treat of the effect of temperature; of the exclusion of atmospherical air; of the question regarding the extrication of carbonic acid; of the effect of the specific gravity of the blood, and of dilution; of the rate at which it is discharged from the body; of rest and agitation; of varieties in the form, size, and material of the vessel in which it is received; of the presence and absence of the fibrinous coat; of the arterial and venous nature of the blood; of the vital principle; of galvanism and electricity; of various gases, and other chemical agents; of the question of the evolution of heat during coagulation; of the nature of the buffy coat; and lastly, he concludes with a general view of the data procured by the foregoing inquiries, and some applications to medical practice.

1. *Temperature.* Heat promotes, cold retards coagulation. This was well known to Hewson, but he was not aware of the great extent of the influence of cold and heat, particularly of the latter. Blood, which begins to coagulate in four minutes and a half when exposed in a room at 53°, will begin to coagulate in two minutes and a half if kept at a temperature of 98°; and blood, which begins to incrust in four minutes at the latter temperature, will do the same in one minute at the temperature of 120°; while that which coagulates firmly in five minutes in a room moderately cool, will contine quite fluid for twenty minutes at the temperature of 40°, and is not completely coagulated till seventy minutes have expired.

2. *Exposure to the Air.* If the air be excluded from the blood, its coagulation is retarded. This is shown very distinctly by receiving a portion of blood into a bottle and stopping it up immediately; but is still better illustrated by using such an apparatus as prevents the contact of the atmosphere altogether. But it is a singular circumstance, that if the air be removed by placing the blood under the receiver of the air-pump, and exhausting it, the coagulation is rather accelerated than retarded; and this happens although the temperature of the blood is actually lowered several degrees, and with great rapidity. It then occurred to the author to try whether this rapid coagulation might not arise from the more rapid and complete separation of carbonic acid from the blood.

3. Doubts have been entertained with regard to the evolution of carbonic acid gas from the blood during its coagulation. On the one hand Vogel found that this gas might be procured from blood coagulating in the vacuum of the air-pump; * Brande, too, observed that it might be procured either in that manner or

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* Annals of Philosophy, vii. 56.

during spontaneous coagulation;[*] and Bauer likewise remarked the latter fact in the course of the microscopical observations he made for Sir Everard Home.[†] On the other hand, Dr John Davy tried unsuccessfully to procure it by filling a jar with fluid blood, inverting it in a saucer of blood or mercury, and allowing the coagulation to go on sometimes naturally, sometimes in the vacuum of the air-pump;[‡] and Dr Duncan, junior informs us, that he has repeated Dr Davy's experiment on natural coagulation, and obtained the same result. The experiments of Dr Scudamore are in favour of the results obtained by Vogel, Brande, and Bauer: They show that carbonic acid is evolved from coagulating blood under some circumstances; but he has not determined what these circumstances are; that is, he has not attempted to account for the failure of other eminent chemists in endeavouring to detect it.

He has found that, if a cup containing blood be put under a bell-glass, and in a saucer filled with lime-water, the lime-water becomes covered with a distinct pellicle, much thicker than takes place under the jar without blood; and that a much thicker pellicle is formed and in a much shorter time when the cup and saucer are placed in the vacuum of the air-pump. The close relation which subsists between the coagulation and the escape of the carbonic acid was shown very beautifully by an experiment, in which the blood was reduced to the temperature of 40°, and then heated by successive degrees by transferring it into warm cups, and placing it each time in a saucer of fresh lime-water under a bell-jar: As long as the lime-water showed no crust, the blood continued fluid; but whenever the crust began to appear, the coagulation commenced; each augmentation of temperature strengthened the coagulation and caused a new crust on the lime-water; and, at last, when the coagulation was complete, the lime-water ceased to be covered with a pellicle. There can be no question, therefore, of the connection between the two phenomena. At the same time this connection does not prove the inference Dr Scudamore has drawn from it,—that coagulation of the blood is inseparably connected with it, and cannot take place without it. In fact, it is well known that blood will coagulate in a bottle filled with it in such a manner that no gas can escape.

4. *Specific Gravity.* Blood has the greatest specific gravity when it is in its healthiest state, and that which has the high-

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[*] Phil. Trans. 1818.
[†] Do. Do. 1818.
[‡] Do. Do. 1823.

est specific gravity coagulates the soonest. But the specific gravity does not vary much,—the range, according to Dr Scudamore, being from 1039 to 1059. That of arterial blood is perhaps somewhat greater than that of venous blood. Dilution with water retards coagulation.

5. Rapidity of its flow from the vein also retards it: Blood, which gives only a pellicle in five minutes when it is drawn in two minutes, will be completely coagulated in a minute and a half, when it is drawn twice as slow. Dr Scudamore attributes the difference to the carbonic acid escaping more rapidly in the latter case.

6. *Rest and Agitation.* Gentle agitation he supposes to act in a similar manner; the blood coagulating somewhat sooner than when left at rest. Brisk agitation produces a different effect; the fibrin is then separated more completely, and the clot is nearly destitute of red globules.

7. *Form, Size, and Material of the Vessels.* Whatever accelerates the cooling of the blood retards its coagulation. Hence it coagulates most slowly in small shallow vessels made of some material which conducts heat well. If the blood is kept at the temperature of 94° by artificial heat, its period of coagulation is the same in every kind of vessel.

8. *Relation between the Fibrinous Coat and the Rapidity of Coagulation.* Dr Scudamore seems to have uniformly found that blood which showed the fibrinous crust was slow in coagulating. At the same time he observes, it is often coagulated near the bottom of the cup, when, to judge by the appearance of the surface, it is quite fluid. Notwithstanding his experiments, doubts may still be entertained whether slow coagulation is the sole or principal cause of the appearance of the buffy coat. Several experimenters have observed it when the blood congealed rapidly, and we may add, that we have seen it begin to concrete on the surface in two minutes and a half, and yet show a strong and thick fibrinous crust. It has often appeared to us, that in blood of that kind the relative specific gravity of the serum and red globules was considerably altered, so that the latter sank more quickly than in healthy blood.

9. *Effect of the Arterial and Venous Nature of the Blood.* On this subject his experiments are not decisive. Sometimes the one, sometimes the other coagulated soonest; and that, according to the rapidity of their discharge from the vessels.

10. *Influence of the Vital Principle.* No question can be made as to the effect of the vital principle in retarding coagulation. In all parts of the living body extravasated blood remains long fluid; and various experimenters have also remark-

ed that it will remain so several hours, when insulated in a portion of its proper vessels by ligatures.

11. *Electricity* is generally believed to prevent coagulation altogether. But Dr Scudamore has shown this to be a mistake; or at least that the fact is not universal, and that it does not depend on any effect produced by this agent on the blood itself. For when electric discharges are transmitted through fresh drawn blood, it concretes as soon, and rather more firmly than that which is not electrified; and in animals killed by the discharge of a powerful Leyden battery, he always found the blood in the vessels coagulated. Galvanism also accelerates somewhat its coagulation. Both agents cause a slight increase in the temperature of the blood, sometimes amounting to two degress; and galvanism, of course, decomposes it in part.

12. *Influence of various Gases and other Chemical Agents.*—Oxygen gas accelerates coagulation, carbonic acid retards, but cannot prevent it. The only other gases whose effects were tried by Dr Scudamore, were hydrogen and azote; but his experiments with them do not appear sufficiently precise. It is a remarkable fact, that during coagulation in oxygen gas, more heat is evolved than when it takes place in the air, and more in the latter case than during coagulation in carbonic acid gas. With regard to other chemical agents, it appears that a saturated solution of the sulphates of soda and potass, borax, or tartrate of soda, renders the coagulum softer than it would be otherwise; that a similar solution of the muriates of soda or ammonia, and the nitrate of potass, and a diluted solution of pure potass, preserve it altogether fluid; that the hydrocyanic acid and extract of belladonna, do not affect its coagulation; that diluted solutions of the sulphates of zinc, copper, and alumina, promote coagulation, and that the sulphate of alumina is the most energetic of the styptics.

13. *Is heat evolved during coagulation?*—We have hinted in the last paragraph, at some facts which lead to the conclusion that heat is evolved; but in the present, the author examines the question carefully. It was natural to expect *a priori* that some heat would be evolved during the coagulation of blood, as the process consists in the passage of a fluid into the solid state. Accordingly, the late Dr Gordon of this city found, that a difference of 12 degrees might often be detected between the temperature of the fluid part of the blood, and of that part which was coagulating. But on the other hand, Dr John Davy observed that the blood, during coagulation, did not differ much from water in its rate of cooling; and suggested, that the small quantity of fluid matter which is solidified, would never cause so

great an evolution of heat as that remarked by Gordon. Dr Scudamore confirms these remarks, relative to the experiments of Gordon; who, he shows, had been deceived, by having always transferred his thermometer to the lower stratum of the blood, which was colder, not because the upper had coagulated and become warmer, but because it had lost a part of its own heat by contact with the bottom of the cup. But Dr Scudamore corrects also the assertion of Davy; and proves, by a series of well conducted experiments, not only that the rate of cooling is considerably slower during coagulation than it must have been, if no heat was evolved; but likewise that, in two or three minutes after the blood is drawn, at a period corresponding exactly with the commencement of coagulation, and long after the thermometer has acquired steadily the temperature of the blood, a rise of one degree may be uniformly observed.

14. *Of the Fibrinous or Buffy Coat.*—This part of the Essay is intended to ascertain whether the proportion of fibrin is greater in buffy than in natural blood. The author finds, that in healthy blood the fibrin is pretty uniformly diffused throughout the different parts of the clot: but that, whenever it assumes the buffy appearance, the proportion of fibrin is always greatest near the surface. Thus, in one instance, he found the upper colourless stratum consisted of 16½ grains of dry fibrin for every 1000 of the clot, while the lower coloured stratum contained only 4⅙; and in another case the proportion was 20½ to 3⅓ only. —The quantity of fibrin is always very much increased in blood which assumes the fibrinous coat. The clot of healthy blood contains from 2.37 to 4.43 grains of dry fibrin; but when it assumes the fibrinous coat, the quantity varies, according to the strength and firmness of the coat, from 7 to 11, 12, and even 13¾ grains. It is a very extraordinary circumstance, that when the blood puts on the fibrinous appearance, the proportion of fibrin decreases in the progressive stages of the same bleeding. Thus, in an instance in which two cups were taken in an equal stream, the former of which was sizy, and the latter not so, the proportion of fibrin to 1000 grains of the clot was 10.33 in the first cup, and 6.25 in the second; and in another instance of the same kind, the proportion was 10.95 to 5.75. Dr Scudamore has not been able to detect any uniform difference between venous and arterial blood in the quantity of their fibrin; in one case the former, in another the latter, contained an eighth part more.—The most violent exercise does not increase sensibly the proportion of fibrin. A stout young man was bled before and after violent exercise; and the quantity of dry fibrin in 1000 grains of the clot was 4.27 grains in the former, 3.86 in the latter portion.

15. *General Conclusions and Medical Observations.*—Under the head of *General Conclusions*, besides a summation of the results, such as we have detailed them, he considers Sir E. Home's hypothesis of the organization of blood thrown out in the living body—the cause of the coagulation of the blood—and the question of its vitality.

Our readers are aware, that some years ago Sir E. Home, resting on the proofs supplied him by Mr Brande of the evolution of carbonic acid from the blood during its coagulation, and on the appearance of tubes caused in a clot by placing it in a saucer containing injection-matter, and then removing the atmospheric pressure—suggested the extraordinary, wild hypothesis, that this is the mode by which clots in the living body are organized. Our author criticizes Sir E.'s "novel and ingenious *theory*," as he humanely calls it; and completely succeeds, according to our notion, in showing its insufficiency. In the first place, he proves experimentally, that the quantity of carbonic acid evolved by the blood during coagulation, instead of being two cubic inches for every ounce, as Brande thought, never exceeds the 12th part of a cubic inch, and is therefore insufficient in quantity to form Sir Everard's tubes. Secondly, he suggests, that the channels formed of a succession of communicating globules by the removal of the atmospheric pressure, cannot possibly be expected to arise during the "gentle natural action of the evolution of carbonic acid gas in the ordinary coagulation of the blood." Thirdly, he found, that "the extrication of carbonic acid gas in blood coagulating or coagulated, when effected under the exhausted receiver of the air-pump, so breaks up the continuity of the mass, that it may well be supposed to produce *fissures or channels* capable of receiving size injection;" but remarks, that this is completely artificial, and not an imitation of what takes place when blood coagulates naturally.

Our author's opinion of the cause of the coagulation of the blood is, that the fibrin can remain fluid only when it is in a state of intimate mixture with red particles, serum, and carbonic acid; that the first essential step is the giving off the carbonic acid, and that the fibrin solidifies, as its characteristic property when no longer in intimate union with the other parts of the blood in living vessels. This theory, we apprehend, is founded in part on an erroneous fact; and when abstraction is made of the part alluded to, the remainder is nothing more than a more round-about way of saying that the blood coagulates. It is clearly shown by his experiments, that carbonic acid is often given out by the blood during coagulation; but the experiments of Dr John Davy and Dr Duncan likewise show, that coagulation may take place in certain circumstances, though the carbonic acid is retained. To say that the blood coagulates, because the fibrin must become solid when not intimately united with the other principles of the blood, is no more an explanation of the phenomenon than the rigmarole of words which John Hunter drew together to account for it. It is merely an expression for the fact in different terms, or perhaps one link in the chain which is to lead us to the actual cause. For our author has still to discover how this intimate union is kept up in the living vessels. It is not certainly by mere agitation; for no agitation will prevent the fibrin from separating, when the blood is removed from the body; and blood will continue long fluid, when insulated in a living vessel by ligatures, and therefore completely at rest. In short, in order to maintain its fluidity, it must be acted on in some way or other by the vital principle; it must either possess vitality itself, or must receive some impression from the living organs in which it circulates; and the loss of this vitality or this impression, is the first essential step towards its coagulation. As connected with this topic, our author endeavours to account for the singular fact observed by him, of the fibrin occasionally decreasing in proportion during the progress of the same venesection. We have seen, that when the blood is sizy at the beginning, and not so towards the end of the bleeding, the proportion may be diminished to one half. He conceives, that the cause of the increased proportion of fibrin in sizy blood, is owing to its not being distributed in its healthy proportion to the fibrous textures, and that this healthy distribution may be suddenly restored during the progress of venesection.

Next follows a short comment on the theory of Mr John Hunter, regarding the vitality of the blood. Dr Scudamore appears successful in proving, that the arguments adduced by Mr Hunter in support of his theory are inconclusive. He likewise states some pretty strong arguments to show that it is untenable; at least that the phenomena, which Hunter ascribed to its vitality, are wholly unconnected with such a property. Coagulation, for example, which Hunter thought was an operation of life, we should be rather disposed to consider as the consequence of the loss of vitality, or, more properly speaking, of certain impressions produced by the vitality of the organs in which it circulates; and Dr Scudamore shows, that it cannot be a vital process, as it is, on the one hand, prevented by trivial causes, which have no influence on life elsewhere, and, on the other hand, is not prevented by some agents which are most surely and suddenly fatal to the vitality of every other part of the body.

The last part of the Essay relates to the medical considerations, which arise out of the experimental part of it. Here he first sums up the several circumstances which must be attended to in the examination of the blood, and offers some remarks on each successively; then adds some conjectures on the superabundance of carbonic acid in the blood, as a probable cause of disease, and concludes with an inquiry into the utility of alum as a styptic.

"In the examination of the blood in venesection, the practitioner must direct his attention to several circumstances; among which the following may be mentioned as the principal: the kind of orifice; the stream in which the blood flows; the state of the pulse during the bleeding; the apparent density, colour and other appearances of the blood on its being received in the basin; the time in which it coagulates; the external appearance of the coagulated blood; the texture of the coagulum; the comparative conditions of the several portions of blood in different cups; the appearance and quality of the serum."—Most of these subjects have been already noticed; but a few of them will require farther mention. Dr Scudamore calls the attention of practitioners to the different tints caused in the colour of the blood by disease, with the view, it is presumed, of discovering what connection subsists between the various tints, and the propriety of resorting to the lancet. The blood is dark, he observes, when the arm is kept long bound up, or when the breathing is obstructed. In all inflammations the venous blood is more florid than natural.—Its density may be judged of by the eye; but the surest criterion is its rapidity of coagulation, the densest blood being that which coagulates soonest.—The quantity of serum depends on the degree of contraction of the clot: little is known of the indications deducible from its characters. The buffy coat is not the best criterion of the state of the blood, and action of the vessels; for, on the one hand, when there is not much general inflammatory action, the buffy coat may not be formed, although the fibrin is preternaturally abundant; and, on the other hand, in diseases attended with much muscular extenuation, the fibrin abounds so as to cause the blood to assume a buffy coat, although no decided inflammation exists anywhere. It is likewise well known, that in the latter stages of some protracted forms of the internal phlegmasiæ, the blood will generally show a strong buffy coat, although the action of the vessels is by no means such as to warrant or require venesection. Without undervaluing too much, therefore, the indications which the physician is in the practice of deriving from this appearance, our author suggests, that more certain information may be got by examining the texture than the mere surface of the blood. When its texture is firm, and, still more, when its edges are turned inwards, strong action of the vessels is indicated; and *vice versa.*

Dr Scudamore has found, that the quantity of carbonic acid which may be evolved from the blood, varies in different circumstances. It varies in different individuals; and is greater after than before meals. He hints that it may be increased by disease. This is not improbable; for it is well known, that, in some dead bodies, considerable quantities of gas are found in the vessels, while, in general, none at all is to be seen. "I have frequently heard patients complain," continues he, "of a peculiar sensation of fullness in the veins, as if they were distended with air. When the case is urgent, not only the veins, but the skin also, gives the sensation of tightness and distension. It seems to me highly probable, that in these circumstances there is an excess of carbonic acid in the blood; and if this opinion be correct, it would surely be useful to prohibit all liquors which contain much fixed air."

The last subject we have to notice, is an account, by way of Appendix, on the styptic properties of alum. Dr Scudamore was led to infer, from his experiments on blood newly drawn from the body, that a saturated solution of this salt is much more effectual than any other styptic in arresting hemorrhage. Accordingly, on extending his experiments to blood issuing from the living body of animals, he found, that hemorrhage from arteries, which saturated solutions of acetate of lead, sulphate of copper, sulphate of zinc, and nitrate of silver, as well as tincture of galls, diluted nitric acid, and Ruspini's styptic, could not check, was arrested in a quarter of a minute, when a saturated solution of alum was poured on the mouths of the divided vessels. Since making these observations, he has had several opportunities of trying it on man; and the result was such as he anticipated. In one instance, by the laying open of a carbuncle, two arteries were divided, from which a pint of blood was lost in a few minutes, and which all ordinary means failed to plug up; yet the application of a lint compress, dipped in the alum solution, checked the hemorrhage immediately. In another instance, in which the hemorrhage was from a wounded temporal artery, and could not be arrested by dividing the vessel, by pressure, or by other styptics, the alum was equally efficacious; and he likewise found it singularly useful in a case of troublesome hemorrhage from a leech-bite, inflicted on an internal hemorrhoid. He suggests farther, that it may be very useful in some cases of hemorrhage after delivery. The solution should always be saturated, and ought to be applied warm, if possible. Lastly, he likewise proposes to employ it inwardly, as an astringent, in internal hemorrhage. Experience alone can determine whether it possesses, in this respect, any advantage over the other supposed astringents. At all events, it has the merit of being harmless, which is more than can be said of the rest; and it certainly deserves to be fairly tried.

VI.

Dissertatio Inauguralis Medico-Chirurgica, sistens Experimenta circa Resuscitationem Animalium aqua Suffocatorum, Commentatio in Concertatione Civium Academiæ Tubingensis, vi. Novembris MDCCCXI. Præmio a Rege Wirtembergiæ constituto ab Ordine Medico ornata, &c. Auctore Carolo Roesler. Tubingæ, 1814.

In our Number for October 1823 we took notice of some novel opinions regarding asphyxia, advanced on the authority of Mr Brodie by Dr Paris and Mr Fonblanque in their treatise on Medical Jurisprudence. We then ventured to suggest, that our readers should receive with much caution opinions which would have so great an influence on a most important department of the healing art, namely, the treatment of suspended animation; and, in the absence of accurate criterions for judging of the correctness of Mr Brodie's views, we mentioned one or two facts which, in our opinion, threw some doubt over the deductions he had drawn from his experiments. The sentiments expressed on that occasion have appeared to us to be most amply supported by the investigations of Dr Roesler, the author of the work mentioned above. As his experiments seem to have been conducted with uncommon care, and with a precision unequalled in any similar researches hitherto published, and have also been in part directed to some objects of practical importance, which no one else has made the subject of investigation, we presume that a short analysis of them will be acceptable to our readers, more especially as the treatise is quite unknown in this country, and can be consulted by few.

It is published in the form of an Inaugural Dissertation, but had been composed three years before, and gained the annual premium given by the King of Wirtemberg to the pupils of the University of Tubingen. The subject of competition, as given by the Senatus Academicus, was the following. "Since the recovery of the drowned and suffocated is often impeded by the obstruction of the air-passages with water and mucus, and by the internal refrigeration of the lungs, *quæritur*, Can it be determined by experiments on animals, 1. whether resuscitation will succeed better by using heated air for inflating the lungs; and, 2. whether any advantage can be derived from freeing the air-passages of the obstructing mucus, by injecting warm water, and withdrawing it again?"

Dr Roesler very properly commenced his inquiries by determining, whether in death by drowning the air-passages are really obstructed by mucus and water, as the proposition of the Tubingen Senate assumed. It is almost unnecessary to remind our readers, that this point has been made the subject of frequent dispute, both by reasoning and by experiment. The uniform result of the author's experience was, that in every instance (his experiments being 45 in number) a very small quantity of frothy mucus might be seen at the bifurcation of the trachea, but no water whatever; and that the quantity of mucus was wholly insufficient to afford the slighest obstacle to the artificial inflation of the lungs.

It was obvious, therefore, that no advantage could be derived from the evacuation of the mucus by washing out the trachea with warm water; but nevertheless he made some experiments on the subject, lest it might happen that this process was of service from some other cause; for example, by restoring the temperature of the lungs. We need scarcely add, that it was not only useless, but even positively detrimental; for, either on account of the time lost in injecting and withdrawing the water, or from its actually introducing, instead of removing, an obstacle to the inflation of the lungs, or from some other less obvious cause, fewer animals were revived than by the simple process, which we shall now describe.

This process was instituted, in order to determine the average number of recoveries by the inflation of temperate air, and the longest period of submersion after which animation might be restored,—with the view of afterwards comparing with these *data* the corresponding results obtained with heated air. The plan pursued was the following. As soon as the animal was removed from the water, it was carefully dried, laid in a warm, but well ventilated place, and rubbed, and finally swathed in flannel. The artificial inflation was then immediately begun, and was continued for half an hour or three quarters of an hour; after which, if no signs of resuscitation appeared, it was abandoned. At the same time, the frictions were frequently

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PART I.

ORIGINAL COMMUNICATIONS.

I.

Case of Hydrophobia, with the Appearances on Dissection. By W. Brandreth, M. D., Liverpool.

In the case of Hydrophobia related in the last Number of the Edinburgh Medical and Surgical Journal, it is mentioned that three persons were bitten by a dog affected with rabies on the 18th of October, the day after the death of the unfortunate man who died in the Liverpool Infirmary. Mr N., an artist of distinguished reputation, his brother, and an apprentice, were the persons alluded to. The bites of Mr N. were the most severe, consisting of several lacerated and punctured wounds on both wrists and one hand. He received them in the attempt to rescue his brother, who fortunately escaped uninjured. The most careful excision was adopted, to which he submitted with great fortitude. This was done within half an hour of his receiving the bite; but as the worst wound was immediately above the pisiform bone, and amongst the ligaments, it was difficult to do it effectually. He was desirous of having his arm amputated, and had it bound tightly round to prevent the absorption of the poison. Caustic was afterwards freely used.

Wednesday, January 12th, 1825.—After a day passed in considerable exertion, from which much fatigue was experienced, Mr N. retired to rest under the impression that he had taken cold. Feeling an uneasiness in his throat, as if the common affection of sore throat was coming on, he rubbed it with some hartshorn and oil, put his feet into warm water, and went to bed.

On the following morning not feeling capable of pursuing his avocations, he remained in bed. When taking his breakfast, he was seized suddenly with a spasmodic affection of the muscles of the throat, and had a slight difficulty in swallowing some coffee. This affection did not make much impression upon him at the time, nor was it observed by the attendants; he attributed it to a soreness which he felt in his throat, and thought it the consequence of cold. In the evening of the same day, however, his friends observed this spasmodic action, and noticed that he frequently drew his breath by sobbing sighs. He felt a difficulty in the act of deglutition, but labouring under considerable thirst, he frequently took some liquid to allay it. The spasms recurred at short intervals. During the night his brother, who occupied the same chamber, was disturbed by the frequency of the spasms which seized him. He made occasional offers to get up and procure something for his relief, but Mr N. treated it laughingly, and said he should be better in the morning.

Friday, 14*th*.—This morning feeling in every respect worse, he consented to send for Mr Bickersteth, who saw him about 2 o'clock, *p. m.* He was then labouring under much anxiety, his countenance pale, and his body generally cold, the pulse not more than 70. He was frequently seized with convulsive sighings, which terminated in spasmodic action of the muscles of the throat. The sighs were deep and agitated, and were excited by the motion of any person passing near him; indeed the mere opening of the door annoyed him; he would start up, ask who was there, and then suddenly be attacked with a fit of sighing, similar to what is produced by a cold bath when entered by degrees. From his knowledge of previous circumstances, Mr Bickersteth had no hesitation in discovering Mr N. to be labouring under hydrophobia. He immediately requested the attendance of Dr Brandreth, and employed the time which would elapse before the Doctor could arrive in adopting the following measures. He instantly gave 50 drops *T. opii,* and ordered a grain of opium, with two of calomel, to be taken every two hours, and a liniment of equal parts of *lin. sapon.* and *tinct. opii* to be rubbed upon the epigastric region and throat every quarter of an hour, and a large blister was applied to the nape of the neck, extending some way down the back. Soon after five, Mr Halton saw him, at the request of Mr Bickersteth, and remained with him till the time of his death; and from his account the case is principally detailed.

" Mr N. felt relieved by the means which had been used to reduce the spasms. He had then taken two of the pills, and the liniment had been rubbed as directed. Still, when any one entered the room, he evinced great irritation, and appeared acutely sensible to the least impulse of cold air. The passage of a person across the room brought on the laboured sighs; and if any question was addressed to him, he was instantly attacked, from the endeavour to answer, with the spasm, and some time elapsed before he could recover command of himself. His faculties were perfect, and he entertained no idea, at least did not express any, of the nature of his disease, although my appearance agitated him considerably, probably from the association of ideas it might excite, in consequence of the interest I had taken about the dog at the time he was bitten. As I had examined the dog after death, he had been extremely anxious to know my opinion, and had called several times in the course of the day, before I had completed the dissection, to have his fate decided, as he termed it. Although I felt convinced the dog was rabid, I gave a contrary opinion, in the hope of relieving his mind from a weight of anxiety which, though he endeavoured to conceal, evidently oppressed him.

" At 6 *p. m.* Dr Brandreth arrived. Mr N. seemed agitated at his appearance. His pulse was 90, the skin warm and moist, tongue furred, and spasms frequent. After consultation, it was resolved to give him the colchicum with *T. opii;* and at 25 minutes past 6, two drachms of *Vin. colchici*, with one of *Tinct. opii*, were given, with some barley water, and directed to be repeated every two hours. He objected strongly to taking this medicine, saying, he had taken enough already, and it was nonsense taking any more for a sore throat, which would be well in the morning. It was strongly urged as being absolutely necessary. He then asked what it was, and whether it was given as a specific for any disease which might be connected with the bite of the dog. It was answered, that the medicine was given with a view of controlling the spasms of the throat, which, if not checked, would be of serious consequence. He then said, if it was recommended to prevent hydrophobia he would not take it, as it must be very powerful, and would do him harm. After much persuasion, however, he took it. *

" I may mention, that from a regard to the feelings of his brother, who had also been bitten, and was present attending upon him, any allusion to the real nature of the disease was carefully avoided; the affection was styled spasms of the throat.

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* From the opinions he had formed, it may be seen how impracticable it would have been to attempt the injection of warm water or acetate of morphia into the veins, or indeed any process which would have required his consent. Neither did the result of the former case induce us to be so extremely desirous of trying it.

"At 25 minutes past 7, his pulse dropped to 92, and was soft, the sighs had been less frequent during the hour, and he was much more composed; he had a motion, and the liniment was continued regularly every quarter of an hour.

"At 8, Dr Brandreth and Mr Bickersteth, accompanied by Dr Briggs, saw him. He appeared easier and tolerably composed. When it was recommended to repeat the dose of colchicum and opium, he objected vehemently, and seemed to think experiment was the object. Had he not before frequently requested some liquid to allay his thirst and moisten his mouth, it would have been presumed he refused his medicine from a dread of liquids; but that could not be, as he had taken some tea frequently, at his own request; and, notwithstanding the act of taking the cup into his hands, and carrying it towards his mouth, excited the convulsions, yet he struggled to overcome them; and when he considered a favourable opportunity occurred, he would, by an instantaneous quick motion, carry the basin to his lips, seize its edge firmly with his lips, and swallow the liquid by a sort of gulping effort. After some persuasion he consented to take the medicine, and swallowed the whole; but the effort brought on the spasms. Drs Brandreth and Briggs, and Mr Bickersteth took leave of him, with a promise to see him at 8 in the morning; he said there would be no necessity, as he should be quite well, and then that he should be flown.

"10 *p. m.*, pulse 90, varying to 100, according to the influence of the spasms. He had been more composed during the interval from half past 8; the spasms much less violent, but the sighs were frequent; tongue white, and the skin moist and warm. At half past 10, another dose of the colchicum and laudanum was given. He took it willingly, as if sensible that the former doses had been of service; and then he expressed that he felt better and easier. Previous to taking the medicine, the convulsive efforts were renewed, but he swallowed the draught with less difficulty.

"Half past 12.—His expressions were at times incoherent and confused, but the spasms were moderate, and he had not had any sleep; pulse 102, tongue white, mouth dry and clammy, from a secretion of viscid mucus. The liniment had been regularly used; another dose of the medicine was given, but he experienced increased difficulty in taking it, and hesitated for some time, being afraid of the spasms, but at last took it cheerfully, and soon after fell into a dose, during which he seemed to labour under great excitement from dreaming; the spasms became violent, and he rolled about in bed with much force, uttering strong and unconnected expressions against some acquaintance. In the midst of this he awoke with wild delirium; he soon became sensible, and rebuked his brother for not waking him immediately, as he perceived him suffering under the influence of a dream, which he described as being most horrible. The space of time which elapsed during all this agitation, was not more than five minutes. He soon became more tranquil, but still occasionally wandered in his conversation. The sighs continued incessant, and several convulsions supervened.

" ½ past 1.—In the course of the last hour he had been up and seated by the fire for a short time. He had softened a bun in some arrowroot, and taken a small quantity of it. The secretion of viscid mucus increased, and appeared to annoy him excessively. The pulse was 120, and weak; the extremities lost their warmth, and were covered with a cold clammy perspiration. This sudden change must have produced some effect upon my countenance, for he observed, ' Mr Halton, you do not think so well of me.' I considered him sinking, and sent for Mr Bickersteth.

" At 2 the spasms became more violent, and extended to the arms, which were twitched to and fro with great force. Sometimes the whole body was convulsed. Severe vomiting came on, which agitated and distressed him exceedingly. He got up and sat in a chair, as he said he could vomit with greater ease. He washed his mouth out with some water, without bringing on any spasm. The vomiting I conceived to be the effect of the colchicum, and that the opium might have increased the delirium. I did not, therefore, attempt to repeat the dose; indeed I now doubt whether he could have swallowed it, as the convulsion soon became dreadful, and the faculties entirely lost. The muscles of the throat were violently affected; soon after those of the back, and complete opisthotonos was produced. This suddenly changed, and the muscles of the abdomen were acted upon, inducing emprosthotonos. Then his whole frame became under the influence of spasm; he rolled once round in bed, and in an instant I beheld him a most formidable antagonist upon his feet; he lost no time, but, with the words, ' You damned villain,' made a blow at me, which I parried: he then fell exhausted upon the bed, and rolled off on to the floor. This I considered a favourite opportunity of securing him; and was lifting him up, when he recovered his strength, and struggled strongly for the mastery, but had not power to overcome me; and assistance coming in at the moment, he was replaced in bed, and lay for 15 minutes quite insensible; but he rallied, and from this time till Mr Bickersteth arrived, it was with difficulty that he could be controlled. All effort to hold him soon became impracticable; the strait-waistcoat was put on, and his ancles secured to the bed-posts. The secretion of viscid saliva was profuse, and he spat in all directions. He seemed engaged in constant conversation, but his expressions were quite incoherent. Sometimes he knew his sister, called her by name, and asked her to kiss him; and frequently upbraided his brother for standing by and quietly seeing him in that state, without making any attempt to put an end to his sufferings. I understood that they had entered into an agreement with each other, that the first affected with hydrophobia should be put to death by the other. From 3 to 5 he continued much in the same state. The convulsions then ceased, and he became tranquil; but his breathing was hurried and laborious; he remained in this state about 10 minutes, and then expired without any convulsion."

Dissection of the Body, 28 *hours after Death, by Mr Bickersteth and Mr Halton, in the presence of Drs Formby, Brandreth, and Briggs.*

Examination of the Head.—Upon detaching the scalp from the *cranium*, it presented upon its inner surface an appearance of great vascularity. The *calvaria* being removed, the *dura mater* was found remarkably vascular. Upon separating it from the inner surface of the *calvaria*, the bone was exposed, completely studded with injected blood-vessels. The arachnoid tunic was generally opaque, and here and there was raised from the *pia mater*, and puffed up by an effusion of serum interposed between the two membranes; in some parts the serum was almost gelatinous. The *pia mater* was vascularity itself, and presented a complete mass of highly injected blood-vessels, the colour of which was not that of congestion, so much as of inflammation, approaching to scarlet.

Upon making an horizontal section of the substance of the *cerebrum*, its medullary structure was exposed, exhibiting a number of bloody points from which blood afterwards oozed—indicating that the whole mass was gorged. These points were not so numerous, as were evident in the medullary structure of the *cerebrum* of the man who died of hydrophobia in the hospital.

The lateral ventricles being opened, presented nothing varying from the appearance which is denominated healthy; the quantity of fluid was not more than common. The *Plexus Choroides* in each ventricle certainly, if I may use the term, were not natural; they were very large, and of a dark reddish brown colour. Upon raising the posterior part of the *Fornix*, the *velum interpositum* was exposed, exhibiting a high degree of vascularity; its colour was of bright scarlet.

The *commisura mollis*, connecting the optic *thalami* in the centre, was remarkably firm.

The *cerebellum* presented no appearance which could be termed a deviation from the natural, with the exception of the great degree of vascularity which was evident as in the *cerebrum*. The *pia mater* interposed between the layers was extremely vascular; indeed throughout the dissection, the vessels of the *dura* and *pia mater* were completely injected with blood, and the *tunica arachnoidea* was opaque, an appearance said to indicate that inflammation had existed.

The *medulla oblongata* appeared natural. The *theca vertebralis* was vascular. Upon lowering the head when the brain had been removed, about an ounce of serum escaped from the sheath within the vertebral column. A coagulum of blood was found in the longitudinal sinus at its junction with the lateral; the blood was also coagulated in the lateral sinuses.

No particular appearance was observed upon the internal basis of the skull; the bones generally were thin.

Examination of the Neck and Arm.—The *vasa vasorum* of the carotid artery, were rather turgid; but the artery itself, was what is termed healthy and natural. The *par vagum* was observed to differ from the usual character of a nerve, in as much as it manifested a general blush of inflammation upon it. The sheath of the nerve was injected with blood-vessels, and small ramifications of vessels were noticed running parallel to the fibres, in the cellular structure which connects the fibres. The observation of this appearance led to the examination of some of the other nerves. The 4th, 5th, 6th, and 7th cervical nerves were next exposed, as they pass out between the *scaleni*. The vascularity of the sheaths was here strikingly evident, as well as the ramifications of blood-vessels, highly injected between the fibres of each nerve. Some of them were so much altered in character, as to resemble muscular fibre. Their external surface was almost scarlet, while the internal was of a pink colour, and with a small magnifying glass the vessels could be distinctly perceived.

The dissection was continued down the arm. The cellular membrane connecting the *cutis* to the *fascia* was turgid with blood. The branches of the cutaneous nerves upon the inner side of the arm, leading up from the cicatrix which had been painful, presented the same appearance which has been described; the deep seated nerves did not.

The first absorbent gland at the inner side of the elbow, and the absorbents leading to the axilla, with axillary glands, were examined; but nothing particular in their appearance was observed. The cicatrix which had been painful was very vascular; and this and another had a small portion of brown gelatinous substance effused in the cellular membrane under them, while the others, which were carefully examined, did not exhibit any similar appearance.

Examination of the Pharynx, &c.—The lining membrane of the mouth, underneath the tongue, was much inflamed. The *fauces*, *uvula* and *pharynx* were in a high state of inflammation, particularly the pharynx, which presented a surface of a complete network of injected blood-vessels; one or two spots of extravasation were observed under the lining membrane. The *œsophagus* was not so vascular; but at the *cardia* it was extremely so, and here was evident extravasation. The lining membrane was almost completely denuded, for the space of six or seven inches above the *cardia*. What did remain peeled off as the cuticle of a blistered surface.

The stomach was remarked to be small. Upon laying it open, some patches of inflammation were observed, and a few spots of extravasation under the mucous coat. The intestines were natural, but much distended with air; and in the colon, near the the sigmoid flexure, two contractions were observed. The liver, spleen, and kidneys, were considered to be healthy.

Examination of the Larynx, &c.—The *larynx* and *trachea* were much inflamed, particularly the posterior part of the trachea. The *pleura pulmonalis* and *pleura costalis* were extremely vascular, exhibiting a perfect network of blood-vessels. No adhesions were to be found in the cavity of the chest. The lungs were in an extraordinary state of congestion; in some parts of a dark venous blood colour, in others of a bright scarlet.

The pericardium and heart were natural, except that the parietes of the ventricles were thought to be thinner than what is usually observed. In the ascending aorta, between its origin and the *arteria innominata*, a slight deviation from the regular sweep was noticed. It resembled a pouch, as if a dilatation of all its coats was taking place. Upon laying open the arteries, no particular appearance was observable.

Examination of the Vertebral Column.—The bodies of the 3d, 4th, and 5th cervical *vertebræ* were raised from the forepart, and the *theca vertebralis* was found covered with injected blood-vessels. The *medulla spinalis* was natural; but at the point where the filaments pass from it to form a nerve, evident appearances of inflammation were visible. This was observed at the origin of all the cervical nerves, in the portion of the medulla spinalis, which was exposed. Upon removing the bodies of the lumbar *vertebræ* in the same manner, the sheath was found extremely vascular, and there was some extravasated blood within it. The nerves in the pelvis, and those passing to the lower extremities, did not present the same inflammatory appearance as was observed in those of the neck and upper extremities.

In reviewing the particulars of this case, I fear that it holds out no additional prospect of success in the treatment of hydrophobia. It can, however, scarcely be doubted that the nerves were the channel through which all subsequent mischief was produced. The lymphatic vessels were quite free from disease, and none of the glands were in the least degree affected. The arterial and venous system were in a perfectly healthy state, while almost the whole of the nerves were in such a high state of inflammation, as to point out the way in which the symptoms were produced, and to account for the fatal termination. It is rare that a case of this description has been seen by three practitioners, so completely under all its circumstances; and the accuracy of the dissection may be safely relied upon, from the care with which it was conducted. It occupied six hours; and no circumstance was overlooked which was pointed out by any of the gentlemen present. What degree of importance ought to be attached to the state of the wounds, it is not easy to say; but it appears not improbable, that the gelatinous fluid found in two of them originated the disease, and that the morbific poison which affected the whole nervous system was generated from this source.

I regret it was not subjected to any chemical agency, or that dogs were not inoculated with it, by which its real nature might perhaps have been ascertained. It is certainly not impossible that this gelatinous fluid might be the result of common inflammation in the cicatrix. It is well known that the adhesive inflammation produces an effusion of gluey matter, resembling the fibrine of the blood. I am, however, inclined to think this was not the cause, as this matter was found in one of the smallest scars which had been healed many weeks, and did not exhibit the slightest blush of inflammation.

Whether the moxa, if he would have submitted to its application, could have been of service, is of course uncertain; and if it may be hoped that local applications to the cicatrix can arrest the disease, it is not likely that any practitioner will ever have an opportunity of seeing a case sufficiently early, before the nerves are generally affected, to prevent the propagation of the poison into the rest of the nervous system. I have no hesitation in saying, that the inflammatory appearances of the nerves exhibited in this case, do not give us the slightest reason to hope that opium can do any good; and the reported failures in the attempts to obviate them by copious depletion, justifies the opinion that the mischief is produced by the poison acting directly upon the nerves. Whether this is slowly generated during the interval between the bite and the appearance of hydrophobia, or whether it remains undeveloped in the original wound till it is called into action by some cause, it may be for ever impossible to ascertain; but if either of these be the real cause, it is at least one step gained towards a more accurate knowledge of the disease. Do these observations suggest the propriety of keeping up the discharge by the use of caustics, longer than has generally been considered necessary? There is always so great a dread of the disease, and such a desire in the patient to deceive himself, and attribute the early symptoms to some other than the real cause, that it is unlikely that advice will be applied for as long as the patient can control the spasms, and prevent them from being observed by his friends. The power of drinking which Mr N. retained almost throughout the disease, must be attributed entirely to the strong powers of his mind; and there is no doubt that he had convinced himself, as he knew this was the distinguishing mark of the disease, that, if he could continue to swallow fluids, he should subdue it.

I regret that we have hitherto received no further account of the success of Dr Brera in the treatment of hydrophobia, by the internal use of belladonna, as communicated by Dr Traill. The reported results were so extraordinary, that they require strong confirmation.

In reading this case, it will be evident that it is in a great measure drawn up by Mr Halton; and his account of the dissection was compared with, and some additions made from, the notes I took at the time.

Liverpool, February 11, 1825.

II.

A Case of Hydrophobia. By D. Campbell, M. D., Physician to the Lancashire Lunatic Asylum.

Cases of *Hydrophobia*, which were formerly extremely rare, having unfortunately, of late, become more frequent, I have been induced to transcribe a case of that disorder, which came under my inspection nearly thirty years ago, as possessing some interesting features of that distressing disease.

Samuel Webb (butler in the family of a lady of rank in Lancashire), aged 33 years, was bitten on the naked wrist, and the leg, by a dog supposed to be mad; and which, being tied up, died convulsed in the course of a few days. The lacerations were considerable, and penetrated deep amongst the tendons, and close upon the artery at the wrist. Twenty hours after he had been bitten, he applied to Dr Low of Preston, who, finding from the situation of the wounded parts, that it was impossible they could be taken out by the knife, without producing the most terrible consequences with respect to the artery and tendons, directed the wounds to be cauterized with irons heated as hot as possible, and introduced quite to the bottom. After which the holes were filled with powdered corrosive sublimate, which occasioned a great degree of inflammation; and large sloughs were formed, which, being cast off, produced ulcers, which continued to discharge until the period of the commencement of the disease. Besides these precautions, he also took the Ormskirk medicine; and, that there might be no doubt as to the preparation being genuine, he went over to Ormskirk and received it from the hands of Mr Hill, and very punctually observed every direction that was given him on the occasion.

On Monday the 14th of September (about eight weeks after the bite), he was seized with headach and rigors, and other symptoms of fever, for which he took an emetic, and afterwards a sudorific. The next day he complained of a weight, numbness and uneasiness in the arm affected, with considerable pains shooting into the neck and back part of the head. Dr Low, who attended him, however, apprehensive of the true nature of the complaint, yet being willing to look at it in the most favourable light, was disposed to hope that these pains might be rheumatic; and upon this principle directed about eight ounces of blood to be taken from the arm, and a few grains of James's powder, with a grain of opium, to be given every six hours. The blood that was taken exhibited no marks of inflammatory diathesis. On Wednesday he experienced a difficulty in deglutition, especially with respect to fluids, and that in proportion to their degree of fluidity. Water, or wine and water, occasioned the most uneasiness; ale not quite so much; and he continued to get down jelly and flummery for a considerable time after he was unable to swallow either of the former. Convulsive motions of the limbs and body now came on at times, and agitated him considerably.

I saw him about twelve o'clock on Thursday night. He appeared collected as to his mind, and perfectly sensible of the nature of the complaint; and, looking for a fatal termination as the necessary consequence, settled his affairs in the most rational manner. His eyes were hollow and dull, his countenance pale, and expressive of great distress. A profuse perspiration flowed from the whole body, apparently occasioned by the violence of the convulsions recurring at intervals, and which required, at these times, several men to hold him down in bed; not that he had any inclination to get up, but, from the manner in which he was affected, he was in danger of being involuntarily thrown out of it. His pulse was about 120 strokes in a minute, and weak. He said he had so great a difficulty in swallowing fluids, that the very thoughts of it occasioned the most painful sensations. Upon being asked to describe the kind of sensation excited, he said it seemed as if there was no passage, and the attempt gave rise to a heat which extended to his finger ends. He complained much of faintness, and sense of want at the stomach (probably arising from his having taken scarcely any food since Monday), and expressed a wish for a little ale, which he said he would try to get down. Upon bringing some in a spoon towards the lips, the muscles about the mouth were thrown into spasmodic contractions, and the hand was, for several times as it were, involuntarily repelled in approaching it; at length, seeming to muster up all his strength and resolution, he forced the spoon within his lips, and made an effort to swallow. The fluid appeared to descend only a part of the way, when it met with some resistance, which forced it back, with a cough. He repeated the trial two or three times, with the same event; and it appeared to occasion so much uneasiness, that he never afterwards made any farther attempt. Fluids did not appear to be in any other respect productive of disagreeable sensations, except from the apprehensions of being to try to swallow them; as he put his hand into a bason of cold water, observing, at the time, "I have no dread of water, you see it does not affect me in the least."

Upon taking a view of the case, and reflecting that the methods of treatment which had been recommended by different authors were so various, so opposite, and had so often failed; and, when said to be successful, rested their claims upon perhaps a single instance where the cure might be attributed equally to the efforts of nature, we agreed to direct our practice to the combating that set of symptoms which the disorder then exhibited, which was evidently that of convulsions and spasms, and appeared to be of the same class with locked jaw and tetanus;—the spasm seeming to be permanent with respect to the parts inservient to deglutition, whilst the convulsive motions, which extended to the whole system, were of a less fixed nature.

As he was so much exhausted from inanition, we proposed giving him two hundred drops of tincture of opium in a glyster of broth, to apply a blister to the whole anterior part of the throat, and to get down ten grains of musk in the form of a pill, as he still continued to swallow a little jelly. About two o'clock on Friday morning he swallowed ten grains of musk with some difficulty, and said he felt it warm in his stomach; but when the other parts of the proposed plan came to be applied, he unexpectedly refused to comply. Having taken it into his head that persons in his situation were often put to death, he could not be persuaded but that which we proposed to do was for this purpose. These ideas had so forcibly possessed him, that, finding it impossible to bring him to comply by common means, some hours were lost in attempting to reason him into an acquiescence. But at length perceiving that the complaint had taken a maniacal turn with respect to his reasoning on this subject, it was determined to use force in the application of what was deemed necessary. By this time, however, the symptoms of approaching dissolution, such as cold extremities, pulse at the wrist as small as a hair, and rattling in breathing, had made their appearances, and he died soon afterwards.

I have to add, that he never slept from the time of his being first attacked on Monday; and that, during the whole progress of the disorder, he was so far from showing any appearances of a ferocious or mischievous disposition, that he was extremely fearful lest his attendants should receive any injury, desiring them, in the intervals of his convulsions, to hold him in such a way, that, when he had not the command of himself, he might not unknowingly bite them; and particularly requested that the handkerchiefs with which he wiped his mouth might be burned, lest the saliva with which they were moistened should be infectious.

For some hours before his death, he occasionally vomited a brown frothy fluid, which appeared to be the gastric juice tinged with the musk he had got down; and however impervious the œsophagus was to the healthy act of deglutition, there appeared no obstacle to the morbid one of passing fluids from the stomach by vomiting. But whether this be peculiar to the disorder, or merely arose as a consequence of that relaxation of muscular contraction which occurs a little time before death, I am unable to determine, as about that period he mentioned that his urine (and other secretions) came from him involuntarily.

I shall now add a few *remarks*, which appear to arise from reviewing the case.

1. That it affords another instance of the inefficacy of the Ormskirk medicine. *

2. It shows the necessity of as early an application as possible of the means of prevention which are to be used with respect to the parts which have been bitten, since the poison may be absorbed, and in the course of a few hours conveyed to such a distance from the wound as not to be accessible by the most powerful caustics or drains, and whence even the knife perhaps would not be able to eradicate it.

3. That the poison appears to act particularly on the nervous system, occasioning convulsions and spasms very similar to those which are apt to terminate in locked jaw and tetanus.

4. That a manaical state of the brain is also liable to be induced, which, viewing objects through a disordered medium, is to be treated with that kind of compulsion which is proper in in such cases.

5. That the constant use of the cold bath, or bathing in the sea (which has been so much recommended by Dr Mead), may, in the interval betwixt the time of receiving the bite and the usual period of its producing hydrophobia, be advantageously employed as a prophylatic; since, by giving a greater tone to the system, and diminishing the irritability of the nervous part of it, additional power will be acquired to resist the morbid impressions when they begin to exert their influence, perhaps sufficient to counteract them altogether.

6. That when, from the peculiarity of the disorder, it is not practicable to introduce medicines into the habit by the stomach, such powerful antispasmodics as *opium* and *tobacco* may be given by *glyster*, which may possibly, by their medical action, overpower the morbid action which is the cause of the disease.

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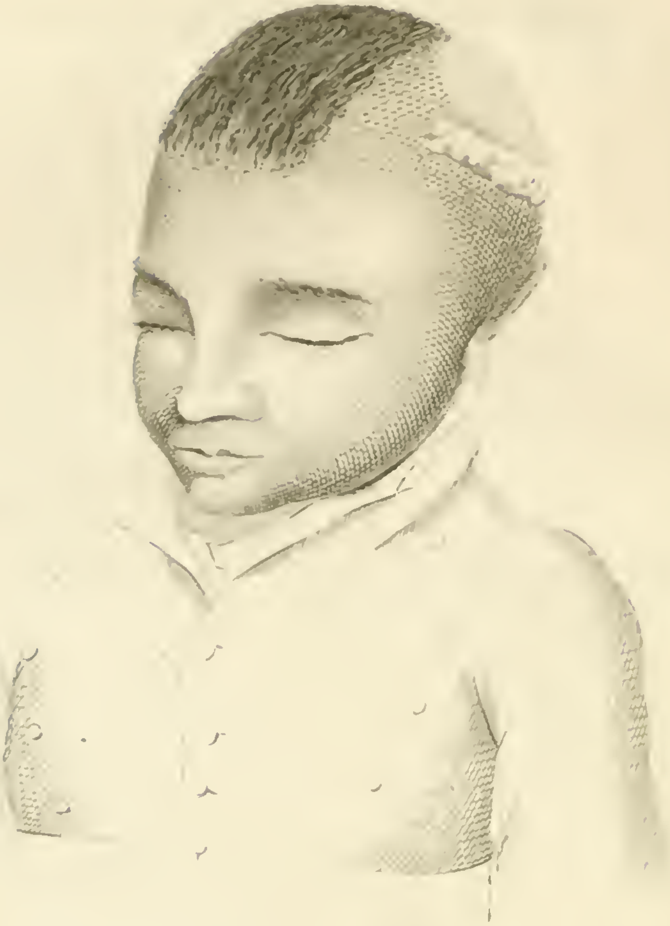
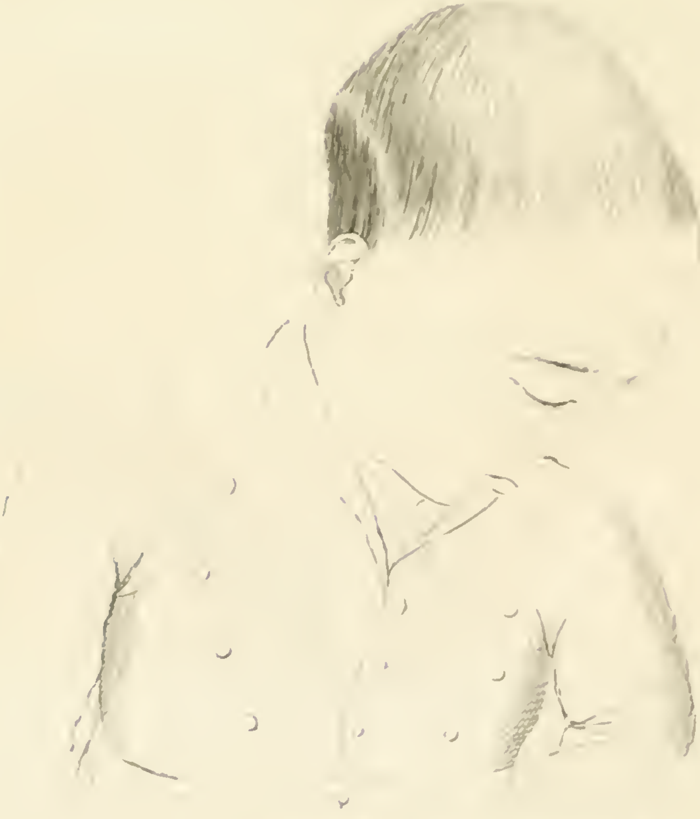
* What is called the *Ormskirk Medicine* was formerly in high estimation as an antidote for the bite of rabid animals; but it has now fallen into, I believe, merited disuse.

M^r NEILSON'S CASE

Edin^r Med. Journal N° 63 p. 245





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III.

Case of Fracture on both Sides of the Cranium, with Depression.

By FRANCIS NEILSON, Member of the Faculty of Physicians and Surgeons, Glasgow, and Surgeon to the Police Establishment. *With an Engraving.*

ON the afternoon of the 20th March 1824, Alexander Drummond, a boy about eight years of age, was ridden over by one of the coaches leaving this for a neighbouring town. The coach carried four inside, and five outside passengers, exclusive of the coachman and luggage. The fore-wheel only passed over his head. He was carried to a surgeon near the place where the accident happened, who dressed a wound on his head, and had him carried home.

On the afternoon of the 21st, I was ordered, by William Rose Robinson, Esq. Sheriff-depute of Lanarkshire, to visit and report to him as to the condition of the boy.

I found the patient complaining of a pain in the head and back part of the neck; pulse 120, hard; tongue clean; skin hot and dry. He was thirsty, restless, and seemingly very uneasy, felt cold, had vomited occasionally, required to be roused before he answered a question, and instantly relapsed into a state of stupor.

My duty being only to report whether he was able to emit a declaration or not, and being of opinion that he would not survive long, I declined examining the head minutely at this visit.

Next day (22d), upon examination I found a very extensive fracture, with depression of that portion of the left parietal bone, which is situated immediately above the centre of the squamous portion of the temporal bone. The portion depressed was about three inches long, and three quarters broad, shattered across in three or four pieces. The depression was nearly to the depth of the thickness of the skull, the outer surface of the depressed portion being level with the inner surface of the neighbouring part of the bone. Over this depression there was a wound upwards of three inches in length, the greater part of which was made by the knife, immediately after the accident, in order to liberate a welk, which the boy had in his bonnet, and had been forced by the wheel under the skin at the time of the accident. Shortly after this visit, I was, on the same day, desired by one of the coach proprietors to take charge of the case; and Dr Corkindale was requested to attend along with me. We visited him in the afternoon, and found him nearly in the same state as yesterday; applied simple dressings to the wound; and, the bowels not having been moved since the accident, we ordered him to get vi. grains of calomel immediately, and afterwards a little calcined magnesia; to have a laxative clyster as soon as possible; and to be kept quiet.

23d.—Has had several stools, of a green and black colour; iris contracts readily; breathes freely; has slept occasionally during the night; is not so restless; pulse 120; tongue clean; stupor considerable; complains of pain all over the head. The calomel, magnesia, and enema, to be repeated, and a poultice to be applied over the dressings.

24th.—Symptoms nearly as yesterday.

Continuentur medicamenta.

25th.—Has had a pretty good night; not near so restless to-day; stupor abating; can answer questions more distinctly; says he feels pain in the forehead, but none where the wound is; whistles frequently; has had several green stools daily; thirst nearly gone; pulse 120; tongue white; skin moist.

Continuentur medicamenta.

27th.—Sleeps well; restlessness gone; can answer questions distinctly; seldom complains of pain, except when asked; calls for bread occasionally, and eats what he gets; no thirst; bowels open, but stools still discoloured; wishes to get on his clothes; feels a little giddy when he sits up in bed. Pulse 120; tongue white; skin moist; wound looking well, and discharging a little healthy pus; granulations springing up. Upon examining the other side of the head to-day, we perceived a deep indention of the bones, beginning at the top of the ear, and extending to near the centre of the occipital bone. This fracture and depression measured in circumference ten inches, and in its centre was half an inch below the level of the surrounding integuments. This, we are of opinion, must have been produced by that part of the head coming in contact with a convex causeway stone at the time of the accident.

Rept. calomel ut antea.

29th.—Bowels open, and stools more natural in appearance; sleeps well; makes no complaints. Pulse 120; tongue cleaner; very anxious to get his clothes on; has been out of bed amusing himself at the fireside with his companions for an hour or two; wound looks well.

From this day Dr C. discontinued his visits.

30th.—He arose this morning at 6 o'clock, put on his clothes, and left the house to amuse himself out of doors. Bowels open; stools discoloured. To have some magnesia occasionally.

April 8th.—Every day since last Report, he has risen at his usual hour in the morning, and passed the most of the day out of doors, in the manner he was wont to do while in health. Has had several stools daily, which are now becoming more natural in appearance. Pulse about 112; tongue clean; appetite good; spongy granulations springing up around the wound, which looks well, and discharges a little healthy pus at each dressing. To have a poultice applied to the wound occasionally, and, when the bowels require it, a little magnesia.

23d.—Has no complaints; pulse 110; tongue clean; sleeps, eats, and amuses himself as usual; belly open; wound nearly covered with the granulations; bones beneath beginning to feel loose. Commenced dressing the wound with adhesive plaster, and applying pressure to it.

27th.—This day I extracted a portion of the outer table of the skull, about an inch in length, and somewhat less than half an inch in breadth. Dressed the wound as usual, and applied a poultice.

28th.—Clipt the greater part of the spongy granulations from the wound, and extracted another piece of bone, upwards of an inch square, and composed of both tables of the parietal bone, the inner having nearly disappeared by absorption.

29th.—Took away another piece of bone to-day of a smaller size than that of yesterday and composed of both tables, ragged on the inside like the former.

May 1st.—Wound to-day looks clean, and healthy granulations are springing up over its whole surface. The brain is seen pulsating through the membranes for the space of two inches; dressing the wound with adhesive plaster, and compressing it with a dossel of lint; pulse 100; belly regular; pupils contract readily; never complains of pain in any part of the head.

May 14th.—Wound looking well, and contracting fast.

23d.—Extracted another piece of bone composed of both tables.

24th.—Another piece of bone similar to that of yesterday extracted to-day.

28th.—Wound closed to-day; ceased to visit him.

July 29th.—About a fortnight ago A. D. was sent to school, where he is confined four hours daily. Four or five days ago he began to complain of pain in the head, which his friends attributed to the noise he was exposed to at school. His sister brought him to my house this morning; she said his sleep was disturbed of late, and that he often moaned while asleep. He pointed out the whole forehead, and that part of the right side, which is depressed as the pained parts; tongue clean; pulse 120; skin hot and dry; bowels confined.

℞ *Calomel gr. vi. Pulv. antimon. gr. iij. Sacch. alb. gr. vi. M. ft. pulv. statim sumend.*

30th.—Has had several stools by the physic; rested indifferently during the night; complains of pain in the forehead and forepart of the neck; skin cool; pulse 100; tongue clean. After this visit I called on him several times, but never could find him at home.

August 29th.—Called upon A. D. to-day: he looks well, and is getting strong; his appetite is good, and she sleeps well. His sister says he has complained of pain in the forehead only once since I last saw him. Pulse 88; is making more progress at school than his friends thought he would have made.

Glasgow, 1st September 1824.

IV.

Observations on the Tropical Endemic Fever, commonly termed the Yellow Fever of the West Indies, during the year 1823. By William Belcher, M.D., Licentiate of the Royal College of Surgeons in Ireland, and late an Assistant-Surgeon in his Majesty's Navy.

PRELIMINARY OBSERVATIONS.

From the opportunities which the sojourn of a time on the West India station has given me (while lately filling the situation of an assistant-surgeon in his Majesty's navy), of witnessing the symptoms, pathology, and treatment of this dire scourge of Europeans in the Western hemisphere, I have been induced to offer a few observations concerning it. I am fully aware of the difficulties which a young medical man of limited experience has to encounter, in attempting to write on a disease which has been so amply discussed, and so ably treated of by many very celebrated men of the present day. But as I con[illegible] duty incumbent on every medical man, both in pri[illegible]blic life, to make known any facts which he has [illegible]tunity of seeing, I shall endeavour, in the follow[illegible] enumerate the symptoms and treatment of the [illegible]mic, as it appeared in his Majesty's ship the [illegible] which I was attached as assistant-surgeon), [illegible]nchor in Port-Royal, Jamaica, during the sum[illegible] of 1823.

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The various opinions on the causes and nature of this fever, the selection of young and plethoric Europeans, particularly sailors and soldiers, during the first year, or year and a half, of their residence in the climate, as its legitimate victims, its rapid progress, and, in some unhealthy seasons, its dreadful fatality, cannot fail to give it a greater degree of interest to the medical practitioner, than the generality of diseases which afflict the human race.

Much light has been thrown, of late years, on the nature of this endemic, by the writings of various practitioners, particularly those in the public service. Among them appear prominent, the names of Bancroft, Blane, Dickenson, Fergusson, M'Arthur, Chisholm, Hunter, Lind, Currie, Fellowes and Pym, with a host of others too numerous to mention.

It is much to be regretted that so great a difference of opinion should exist between writers as to the question of the contagious nature of this disease. Many most respectable men support the contagious side, though certainly the weight of authority leans to the non-contagious side of the question. We have, in support of its being a contagious disease, the names of Lind, Blane, Wright, Chisholm, Currie, Thomas, Fellowes and Pym; opposed to those are, Hunter, Moseley, Jackson, Miller, Rush, Bancroft, Dickenson, Burnet, Fergusson, M'Arthur, Veitch, and Mortimer. From what I have observed, I am most decidedly of opinion, that the form of fever which I have seen was of a pure non-contagious character. I have been several times exposed, while attending the sick, to the exhalations from the patient's body on turning up the bed-clothes. I have actually inspired a part of the patient's expiration, which at the moment imparted a peculiar disagreeable sensation, not to be well described; so that I am confident, if any *contagion* existed at that time, I should have caught the disease; yet afterwards, when I was not in the slightest degree exposed to the above causes, and notwithstanding the utmost care in avoiding the predisposing and exciting causes, I was attacked. There is something still unknown in the climate which predisposes to attacks of this fever, all Europeans recently arrived, particularly the young and plethoric; even temperance will not exempt them from danger. The water-drinker and the wine-bibber are equally attacked, though the latter stands by far the worst chance of recovery. Although it is my decided opinion that the disease, as it generally appears, is of a non-contagious character, yet I by no means deny that it is possible for it to become contagious. Neglect of cleanliness, ill ventilation, impure atmosphere, a crowded state of the sick, and all the other disadvantageous circumstances which will make fever of any form contagious, doubtless will make this so at certain periods. I shall not attempt to discuss the exciting or predisposing causes —the contagious or non-contagious nature of the disease,—and it is my intention to confine myself to the symptoms, pathology, and treatment of the disease, as it came under my own inspection. On looking over the different authors who have so ably treated on this terrific scourge, I find in none so able, so concise, and so truly faithful a description, as that given by Dr M'Arthur, the late physician to the Local Naval Hospital. It is a relation of facts taken from Nature—from the bed-side of the patient,—and facts will contradict theory to the end of time—agreeing with the words of the learned Dr Johnson—" Human experience, which is constantly contradicting theory, is the surest test of truth."

This fever generally appears at a particular period of the year, in a milder or more severe form, varying according to the state of the weather during the season. Solitary cases will be met with at all periods; but the most usual period of its appearance is during what is called the rainy or sickly season. From December to May the weather is dry, and much more temperate than during the other months; and, consequently, this period of the year is much healthier, being called the dry or healthy season. About May, or perhaps later, the rains commence and fall in torrents; at the same time the heat of the weather is gradually increased, until the thermometer of Fahrenheit rises to 86, and varies then, till October, from 80 to 93, and even to 96 in the shade; it has been known to have reached 103 in the shade, and 140 degrees in the sun, though I must confess, I never experienced that degree of heat there. The utmost I ever felt was 92 in the shade. The atmosphere during the rainy season is often very dark and cloudy, and the sun does not shine out; so that the quantity of water which falls, remains, and becomes stagnant in the low grounds, from which exhalations of a most deleterious nature are often emanated. All who happen to labour under fever near these noxious exhalations, have the disease in a most aggravated form; the weather at the same time becomes excessively hot and close, although not a gleam of sunshine is to be observed; the thunder rolls awfully, accompanied by most brilliant flashes and sheets of lightning; and the rains fall from the clouds in quantities scarcely to be credited by those who have not witnessed them. This kind of weather tends peculiarly to depress the mind, and, I think, predisposes a great number, particularly those who are alarmed, to attacks.

All the West India Islands have their healthy and unhealthy seasons, varying according to their surface, whether flat or mountainous, woody or cleared, dry or intersected with marshes. Barbadoes is, generally speaking, one of the most healthy islands. It is moderately above the level of the ocean, clear of wood, has scarcely any swamps, and is generally well cultivated. Parts of Jamaica are exceedingly unhealthy at different seasons, particularly Kingston, the principal town. It is rendered unhealthy by its proximity to marshes. Here intermittents are very frequent, and the endemic fever now and then assumes a most malignant character. The north side of the island is more healthy, and persons are sent for change of air to Montego Bay, Port Antonio, Falmouth, and many to Barbadoes, which is considered as the Madeira of these islands. The comparative difference of health between the army and navy on the West India station is remarkable, as soldiers are much oftener attacked than sailors, and more cases terminate fatally.

SYMPTOMS.

This fever has been designated by various names. By Sauvages *Typhus Icterodes;* by the celebrated Cullen, Typhus (*cum flavedine cutis*), though (with every due deference to so high an authority) the yellow colour of the skin is by no means a common symptom in this disease; by the French *Maladie de Siam, Fievre Matelote;* and by the Spaniards *Chapetonada,* and *Vomito Prieto.*

It is ushered in by the usual premonitory symptoms of fever in general; debility, indisposition to active exertion, sensations of stiffness, and pain along the spine, lumbar regions and extremities; pulse during this particular period of oppression depressed and rather slow, coldness of the surface, with partial moisture. These symptoms are soon followed by a stage of reaction. Headach becomes intense; a distressing fulness of the eyeballs ensues, which imparts a sensation as if they were pressed on all sides by a weight, and the orbit was too small to contain them; great intolerance of light, accompanied by vascular conjunctiva; in fact, the eye presents a peculiar appearance, indicating deep internal distress, and well known to those who have seen it a few times; the skin becomes dry, and imparts a burning sensation to the hand of the medical attendant; the pulse becomes full, quick, and bounding, resisting the pressure of the finger, and generally beats 120, or upwards. At this particular period the tongue is parched, white in the centre, red at the edges, and bowels very costive. Sometimes during exposure to the sun, a man will fall as if knocked down by a blow, with all the symptoms of an apoplectic attack, accompanied by a depression of nervous energy, dilated pupil, and total suspension of voluntary motion; after which, fever comes on in a most aggravated form, and delirium soon sets in. (Here the most active measures must be put in practice without delay, otherwise the patient will have a poor chance of his life.) In the course of five or six hours after the primary symptoms have appeared, if nothing has been done, the pain in the back and loins increases, sometimes extending to the umbilical and hypogastric regions; the countenance becomes more flushed; the eye more expressive of deep distress; he becomes more restless; the heat and dryness of skin increase; thirst becomes urgent; urine high coloured, acrid, and small in quantity; pains of back and joints more aggravated; pulse becomes harder; a sensation of heat and fulness of the epigastrium, with considerable tenderness on the slightest pressure, is complained of, accompanied by nausea. If nothing has been done to arrest the above mentioned symptoms, the patient is in most imminent danger; all the symptoms become aggravated; pulse harder, fuller, and quicker; carotids and temporals bounding; thirst excessive; internal distress and anxiety of countenance increased; eye assumes a dirty yellow colour, with a peculiar dulness of the cornea; the knees are drawn up to relieve the tenderness of the epigastrium and abdomen; much straining, with frequent vomiting of mucus, tinged with bilious matter, accompanied by the *ingesta*. Delirium now generally ensues, accompanied by a difficulty of swallowing, particularly referred to that part of the œsophagus which is situated behind the larynx. The third day appears with apparent relief of the before mentioned symptoms, excepting the vomiting, which is the most intractable symptom attending the disease. The fluid ejected now assumes a different appearance. Floculi of lymph are seen floating in a straw-coloured bilious fluid, which is constantly thrown up. Nothing now will remain a moment on the stomach; even cold water, which the unfortunate patient constantly calls for, is immediately ejected. In a short time the ejected fluid assumes the well known appearance termed the Black Vomit, which, on being collected in a basin, appears of a chocolate colour. On allowing it to settle, a sediment resembling the grounds of coffee subsides to the bottom, while the supernatant fluid appears of a straw-colour, resembling the serum of the blood. On shaking it together, it reassumes its primary chocolate appearance. After this I never saw a patient recover, nor I believe has any body else. The heat of skin now becomes reduced, and a partial perspiration of a clammy and adhesive nature breaks out on its surface. The patient, for a short time, fancies himself relieved; but the delusion soon vanishes. Diarrhœa comes on, and the matter passed is of a black colour and pitchy consistence, emitting a dreadful fetor, and sometimes streaked with blood. The patient complains of inability to pass his stools from debility. The acrid burning sensation of throat increases, and appears to extend down the œsophagus, being more concentrated in that part immediately behind the larynx; the eyes are now, in some instances, suffused with blood; the skin becomes, in a few instances, of a dirty yellow colour, though sometimes not till just before the close of life. Parts which are pressed by the bed become livid. Hemorrhages sometimes take place from the nose, mouth, anus, and ears, and blood has been even observed in the urine. Delirium becomes of a low mutturing nature; great prostration of strength ensues. The patient tosses his arms about; lustre of eye totally gone; knees drawn up, and stomach continually ejecting the black vomit. This does not now last long. Pulse begins to sink and intermit, respiration becomes laborious, countenance collapsed, and sometimes he is totally insensible previous to death, and appears gradually to expire without a convulsion. At other times he is sensible to the last moment, is perfectly resigned to his fate, and expires immediately after an effort of vomiting.

Such is the rapid and fatal progress of the symptoms in this dire disease, when active measures are not early put in practice. The succession of those symptoms will of course be more or less rapid, according to the fulness of habit of the patient, and his strength of constitution to resist them, and to the violence of the disease. In debilitated habits, the vascular action will be less marked, and the disease more protracted, and the patient will often retain his senses to the last moment,—will be perfectly aware of his fate, and will predict with accuracy the hour of dissolution. In almost all the cases of this fever which I have seen, it appeared to be of the continued form, without a single remission, and similar to the simple continued inflammatory fever of Northern climes, but having all the symptoms in a more aggravated form. I have observed in many cases, where the determination was to the head, that the stomach was but slightly affected, the patient dying from congestion of the vessels of the brain; but these cases of determination to the head were very rare; the stomach unequivocally appearing to be the organ most affected. This is amply proved by its excessive irritability, which forms one of the most prominent features in the disease, and by the disorganization of its mucous coat, which dissection fully exhibits. In the latter stages of this disease, it is remarkable how reconciled to their fate some patients appear. This forms a curious contrast with those taken ill, who, at the commencement, labour under the most dreadful apprehensions, which in many instances has a very bad effect, and produces aggravation of all the symptoms.

Thus far I have endeavoured to recite the progress of symptoms in the few bad and fatal cases which came under my observation. I shall now proceed to state the morbid appearances which presented themselves in those cases which I had an opportunity of examining.

PATHOLOGY.

Abdomen.—On opening the cavity of the abdomen, we generally found more serous fluid than natural in the peritoneal sac, and sometimes marks of inflammatory action on the surface of that membrane; the omentum slightly vascular, and sometimes thickened in minute points, with filamentous adhesions to the abdominal parietes; liver occasionally inflamed, particularly the concave surface, in one case adherent to the pylorus; gall-bladder turgid, with thick viscid bile; small intestines containing more or less air; duodenum inflamed, and mucous coat in a few cases ulcerated; large intestines inflamed, and ulcerations to be observed in the mucous coat of the colon and rectum.

The peritoneal coat of the stomach vascular; its capillary vessels shooting in arborescent forms; mucous coat always more or less disorganized; ecchymosed in some parts, and ulcerated in many points, generally softened in its structure, so as to peel off with the finger nail; cavity containing more or less of the chocolate fluid like that vomited, with shreds of lymph floating in it. Medical men, by the by, differ much in opinion relative to the origin and production of this black vomit. Some suppose it to be blood effused from the mouths of the capillary vessels of the mucous coat, and mixed with the gastric fluids, while others imagine it to be vitiated bile; and others assert that it is a morbid secretion from the diseased mucous coat. This last, according to my judgment, appears to be the most probable opinion. It is a fluid *sui generis*, the result of acute inflammatory action and disorganization of the mucous coat of the stomach. I regret that I had it not in my power, from the want of proper chemical apparatus, to subject a portion of this fluid to analysis; but I hope some future writer of experience and ability will investigate this matter, merely for the improvement of pathological science, as no practical good whatever can be expected to result from the discovery of its component parts.

On examination of the urinary apparatus, we generally found the kidneys and ureters perfectly healthy; but the mucous coat of the bladder presented marks of irritation, more vascular than natural, with a few minute ecchymosed points. As the patient sometimes, previous to death, complained of dysuria, we were not surprised to find those appearances. Pancreas and spleen healthy, though the last viscus was more turgid with blood than natural, and sometimes softened in its structure, so as to be easily broken to pieces.

The thorax presented nothing remarkable, with the exception of the thick root of the lungs, which was turgid with black blood. On examining the œsophagus, we found the mucous coat inflamed and vascular, particularly behind the larynx, corresponding to that point where the patient before death complained so much of the burning acrid sensation, with difficult deglutition.

The head, in those cases where the stomach was principally affected, exhibited nothing remarkable; but when delirium existed previous to death, to any extent, there was always more or less cerebral congestion, and in some the marks of inflammatory action were observable. The body, after death, soon ran into putrefaction, so that we were obliged to perform the dissection in half an hour after the last expiration. These were the prominent morbid appearances which were noticed in the fatal cases which we had an opportunity of examining.

We had a great number of cases during the season, in the generality of which the disease was very mild. There were a few severe, and some fatal cases. All the favourable ones yielded to judicious and active treatment, put in practice by Mr James Wilson the surgeon, to whose active exertions and attention I can bear ample testimony, during the time I was his assistant-surgeon in the Gloucester.

TREATMENT.

The patients generally presented themselves an hour or two after the onset of the primary symptoms, sometimes immediately after, and during the stage of oppression.

In the generality of them, the stage of reaction was fully established when we saw them; the skin was hot and dry; cephalalgia intense; eyes turgid, and expressive of much distress; tongue parched; thirst urgent, and pulse hard, full and bounding, beating 120 and upwards; carotids and temporals pulsating, so as to be easily seen. Here we lost no time in attacking the disease with vigour, and most frequently cut it short in its infancy. Venesection from 40 to 80 oz., and in some instances to 90 oz., was immediately performed, varying according to the strength of the patient. They were generally bled in the horizontal position, as *deliquium* was prevented thereby for a longer period, than in the sitting or erect posture. We were by this means enabled to make a more radical impression on the system; and by one large and effective bleeding in the commencement, frequently doing away with the necessity of further depletion. The relief after venesection was immediate; and all the symptoms were manifestly diminished in intensity, some having completely disappeared. I really would not have credited that a man could lose 90 oz. of blood at one time without fainting, until I saw it; I have more than once taken 90 oz. from a man, who, I am confident, would not bear 50 oz. in this climate without fainting. It is an undoubted fact, the reason of which I cannot pretend to explain, that patients labouring under a disease of an inflammatory nature in a tropical climate, will bear double the depletion that they would in northern climates. The bleeding was soon followed by the exhibition of an active purgative bolus of *submuriat. hyd. gr. xii. Pulv. rad. jalapæ ℈i. ad ʒss. Elect. sennæ vel scammon. q. s. M. ft.* This was then followed by frequent draughts of *solut. sulph. magnes. vel infus. sennæ. c. sulph. magnesiæ*, until the intestinal canal was completely cleared of its contents. As soon as these intentions were accomplished, the relief was apparent, skin became cool and moist (a most favourable symptom), pulse softer and slower; headach, intolerance of light, and fulness of eyeballs much relieved; and by keeping up the catharsis, nothing else was required in very many cases but abundance of cooling acidulated drinks, and great quietude to restore the patient to convalescence. These were the most fortunate and tractable cases we met with.

There were some cases who applied during the stage of oppression, with coldness of surface, rigors, and small quick pulse, inability to move about, and general sensations of soreness over the body and joints; to use their expression, they felt as if beaten by a stick, accompanied by tenderness of epigastrium, with nausea. In these cases, we administered the purgative bolus, and immediately ordered the patient into his hammock, and waited a while for reaction, when depletion was put into practice, and in many with relief.

In some, notwithstanding all the depletory measures which were made use of, the disease advanced, the stomach soon became affected, while in a few, the symptoms of cerebral congestion developed themselves. Here we shaved the head, applied iced night-caps, and opened the temporal artery with considerable relief. In all cases which were not relieved by the primary depletions, we found the most decidedly beneficial effects from the exhibition of mercury, so as to affect the mouth. Taking care that the depletory measures were well put in practice previously, and sedulously avoiding the scruple-dose practice of India, we found that the 3 grain calomel pill, exhibited every second or third hour, answered most effectually in producing salivation. In the course of 24 hours, sometimes in 6 or 8, sometimes not until 36 or 40 hours had elapsed, these would sometimes excite irritation in the intestinal canal; and we then added to each pill ¼ gr. of opium, which completely allayed the griping, without interfering with the sialagogue powers of the mineral. We found in almost every favourable case, as the mercurial action became established, the febrile diminished. There is a something peculiar in the action which mercury exerts on the system, which renders its existence with febrile action incompatible. The principle promulgated by the celebrated John Hunter, "That two morbid actions cannot exist at the same time in the system," is here well exemplified, although we have well authenticated instances on record that they can in other diseases. I cannot too strongly recommend the mercurial practice in tropical fevers, conducted in the above manner; I have seen it most beneficial, and I am confident that it has saved many a life, when proper evacuating measures had been premised. I am by no means an advocate for the wanton use or the abuse of mercury, nor have I that *horror hydrargyri*, that I am sorry to see so many of my professional brethren possess at the present day. I am not so prejudiced against its use, as to allow a fine child to expire in *cynanche trachealis* from suffocation, or to suffer a female of 16 or 18 to lose an eye from the effects of iritis, by the occurrence of a closed pupil; nor am I so prejudiced in favour of its abuse, as to accelerate the destruction of the nasal spongy bones, or of a penis labouring under gangrenous inflammation, accompanied with ulcerations. I humbly conceive, that mercury in judicious hands is one of the most powerful and useful medicines our Materia Medica affords. With respect to its use, I shall always adhere to the motto, "In medio tutissimus ibis."

When nausea makes its appearance, it is always to be dreaded, as, if it goes on to frequent vomiting, unchecked, something decisive must be done. When nothing medicinal could be exhibited by the mouth, we gave large emollient enemas to keep the purgative effects up; we placed a large blister on the epigastric, left hypochondriac, and umbilical regions. This, in many instances, I think, saved the patient's life, by allaying the excessive irritability of stomach. If this failed, we found nothing effectual in preventing the occurrence of black vomit, which, when perfectly established, was, in those instances I saw, the certain herald of consequent death. Brandy and water, ether, opiates, effervescing draughts and mixtures, have been given to allay the vomiting. They are all absolutely worse than useless; they only increase it, as the stomach will eject any thing which enters its cavity; so that the unfortunate patient will be less teazed by the efforts of vomiting, if its cavity is allowed to remain empty. If the timely evacuations, and subsequent counter-irritation of blisters, do not stop it, the black vomit will come on, and nothing will stop it.

In those cases where determination to the head existed, after shaving the head, opening the temporal artery, and applying the iced cap, we found it necessary sometimes to blister the back of the neck. We preferred this to a blister on the scalp, as the latter scarcely produces vesication, and is exceedingly difficult to heal, producing much irritation without any apparent benefit. In many cases, where large blisters had been applied, as before related, we found the urinary organs much affected with irritation, so as to produce nearly a complete retention of urine, probably from the absorption of minute portions of cantharides. These were relieved by the exhibition of diluents in large quantities, accompanied by the use of the warm bath. In those cases where blisters produced such disagreeable effects, we substituted, with much advantage, a liniment of one ounce of turpentine, in which was diffused ʒii. of the *antimon. tartarizat.* This was applied by a cloth soaked in it, and kept continually wet with the same, over the whole surface of the abdomen, epigastric, and hypochondriac regions. It produces a most extensive crop of pustules over the surface, amounting to ulceration. In some points this had all the good effects of blister, without its bad effect of irritating the urinary organs. The idea of applying it was suggested by a recollection of the letter on the Effects of Artificial Eruptions, written by the celebrated, and justly to be lamented, Jenner, to the late Dr Parry of Bath, a few years ago; and I can bear testimony to its excellent effects, not in this disease alone, but various others, which I need not now enumerate, as I believe the use of the *ung. ant. tart.* is now well known to all well educated members of the profession.

Finally, the chances of recovery entirely depend on the time active measures have been put in practice. If twenty-four hours have been allowed to elapse before any thing has been done, the prognosis must indeed be unfavourable. When our exertions are to be crowned with success, we find the stomach to become retentive, the eyes to become lighter, brighter, and less vascular; tenderness and fulness of epigastrium diminish, and gradually disappear; skin becomes moist and soft; pulse soft and slow; evacuations *per anum* less fetid and black, and gradually assuming a healthy colour, denoting that the biliary secretion is about to be reestablished. He now labours under nothing except the effects of debility, without any pain or uneasiness, varying in degree, according to the active or mild manner in which he has been treated. When the depletions have been extensive, the debility is considerable, and the convalescence tedious; and there is in these cases considerable danger of a relapse. The patient must not be allowed too many indulgencies prematurely, he should be closely watched; wine, porter, &c. with arrow root jelly or sago, should be given at first, in small quantities, and when the patient gets stronger, soups, with vegetable diet; and, lastly, animal food might be gradually allowed him. These means, together with the society of his friends, and moderate exercise in the cool shade, will soon contribute to restore him to health.

In conclusion, I must remark, that the season which I spent in the West Indies was, generally speaking, a healthy one; the rainy season was very short, and the marshy exhalations were less in the neighbourhood of Kingston and Port-Royal.

It may be observed that I have not advanced any thing very new in the above account of the disease and its treatment. What I have stated in these pages is a faithful account of what I have actually seen, transcribed from notes in my possession, which I took daily at the patient's side, the only useful source, in my opinion, of practical information.

V.

Successful Excision of Labia Pudendi, enormously enlarged by Elephantiasis. By Dr William Birrel, Assistant-Surgeon of the Forces. Communicated by J. Dease, Esq. Surgeon to the Forces. (*With an Engraving.*)

With this I send you the third drawing of Jeannie Mitchell, which simply shows the effect of the removal of the tumour, viz. the cicatrix, and extent of the base of the swelling. In regard to the particular cause of the morbid action which produced such an unusual growth of the *labia pudendi* of this woman, I have not been able to ascertain any thing satisfactory. Eleven years ago, she states, she was seized with symptoms, which, from her description, appear to have been those of gonnorrhœa, with chancres. At all events, her medical attendants treated her complaint as venereal; for, from her own account, she was salivated to that degree as not to recover from its effects for nearly twelve months. During all this period, a white slimy discharge from the vagina continued, when it gradually ceased. Then the labia first commenced that morbid action which ultimately brought them to that unprecedented magnitude which you yourself witnessed, and which the drawings, * and the removed tumour, now in your possession, so fully exhibit. There is little or no occasion to inquire into this woman's affection particularly. The disease is very general in this island, and is vulgarly called Rose All classes of *natives*, white, coloured, and black, but particularly the latter, are liable to its attacks. It seems, in particular instances, to be hereditary or constitutional, as there are many instances of whole families being affected with it at the same, or different periods.

If this affection is not completely overcome on its first invasion, the constitution takes on a susceptibility to the disease, which is easily brought into action on being exposed to the slightest cause, such as wet, cold, &c. † Each subsequent attack increases the susceptibility to the disease, and adds to the augmentation of the swelling. With respect to the remote causes of this complaint in particular, nothing, so far as I know, is accurately ascertained. Those of inflammation generally may perhaps be also applicable here. The " proximate cause " appears to be the same as that of dropsy, viz. " diminished action of the absorbents, with the usual or increased secretion from the exhalants. " And the exciting cause of this is inflammation of the lymphatics, as is evident from the effect of the remedies usually employed—(V. S.—cathartics—antiphlogistic regimen &c.)—and from the tense and shining appearance of the swelling in the prior attacks. In each successive attack, the lymphatic vessels undergo a thickening, and perhaps also the conglobate glands become partially obstructed, while the sanguiferous system being sound, the exhalants continue to pour out their fluid, which, not being absorbed, must consequently stagnate in the cellular membrane. As this fluid accumulates, so must the power of absorption be proportionally diminished, and gradually the effused fluid is converted into a substance of a semi-cartilaginous nature, and the cellular membrane disappears, or undergoes the same conversion as that of the effused fluid. This cartilaginous substance presses upon the surrounding parts, and adds to the diminished function of the lymphatics, and, therefore, becomes an additional cause of the complaint, which now no remedy can retard or remove, but the knife.

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* By W. P. T. Huggins, Esq., proprietor of the girl.

† The parts of the body *generally* affected are the lower extremities, the scrotum, and labia pudendi. I saw Dr Daniell of this Island remove a scrotum which weighed 35 lib. The labia pudendi of Jeannie Mitchell weighed a little more than 28 lib.

In fine, the same reasoning may be applied here as to the growth of other parts of the body. The action of the secerning arteries must be balanced by the power of the absorbents;—when either prevails, the consequence is obvious. In tumours which constitute no original part of the body, their formation must be the result of an increased action of the secerning arteries of the parts adjacent. And when original parts of the body undergo an enlargement, this seems to be owing, principally at least, if not wholly, to an imperfect absorption.

With respect to the health of this woman during the progress of her disease, it was generally good, and every function was regular and natural. The only exception to her general good health was the febrile affection, which generally accompanies successive attacks of this complaint, and which usually occurred every six weeks. Three times also, during the two last years, ulceration of the tumour occurred, with superficial hemorrhage, which produced great debility.

The patient having been placed on the table, the shoulders a little elevated, the legs were held back by two assistants, the tumour was pushed to the left side and retained there, whilst the operator commenced an incision at the top of the tumour, which he continued through the common integuments down to the verge of the anus. This brought into view several veins very much enlarged, being fully an inch in diameter, which, when divided, threw out an immense quantity of blood, completely deluging the table. It was then deemed prudent to remove the remaining part with as little delay as possible; to accomplish which, an assistant made pressure on the vessels that bled from the trunk, allowing the vessels in the tumour to empty themselves. The same mode was adopted on the opposite side; and the tumour embracing both *labiæ* was removed in less than ten minutes. The arteries were then secured, the incised edges were brought together, and retained in apposition by eight sutures, at the distance of an inch from each other. Straps of adhesive plaster were then applied, and some lint, smeared with simple ointment, laid over it; the knees were tied together; the parts were kept constantly wet with cold water; the bowels were attended to, and kept free by small doses of sulphate of magnesia; she was ordered a low regimen, under which treatment the parts cicatrized, and were perfectly healed in ten days, leaving the poor woman in a comfortable condition, to which she had been a stranger for eleven years. She was able to walk out of the hospital on the 12th day after the operation.

The most tedious and troublesome part of the operation was in securing some vessels about the clitoris; nor did the oozing of arterial blood cease until a ligature was passed round the part, and slight pressure made. This, of course, was owing to the blood coming from the cells of that body. It appeared that the operation could have been much expedited by removing, with one stroke of an amputating knife, the whole mass at one side, after the division of the integuments, instead of repeated cutting with a scalpel.

On examining the diseased state of the tumour, the integuments were found approaching to a semicartilaginous state. The whole substance was dense, and appeared to have been deposited in cells, having a fatty-like appearance; the arteries taken up did not exceed more than five on each side, and were remarkably small.

The preparation was brought to England, and deposited, by Staff-Surgeon Dease, in the Museum of the Medical Staff at Chatham.

Explanation of the Plate.

Fig. 1. Is a posterior view of the tumour.
Fig. 2. An anterior view.
Fig. 3. A view of the wound after the removal of the tumour.
Fig. 4. A view of the parts after the wound was cicatrized.

VI.

Case of Rotatio or Chorea, treated Successfully by Rubbing Tartar Emetic Ointment into the Scalp, and along the course of the Vertebral Column; with Observations on the Pathology and

Dr. BIRREL'S CASE.

Med. Journ. No. 83 p. 260.

Fig. 1.

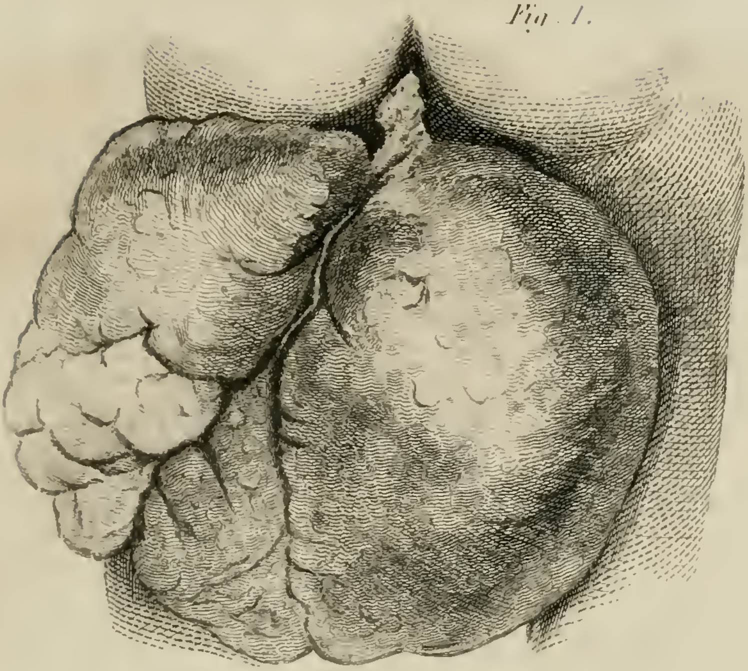


Fig. 2.

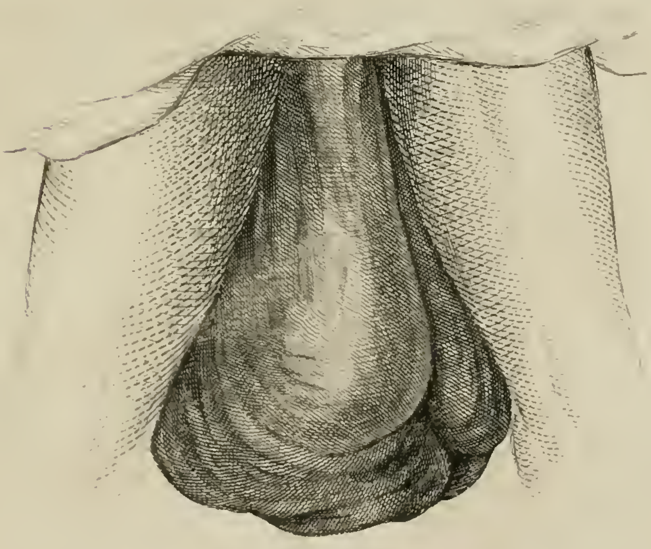


Fig. 3.

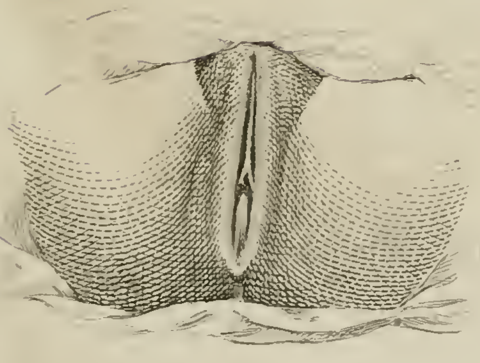
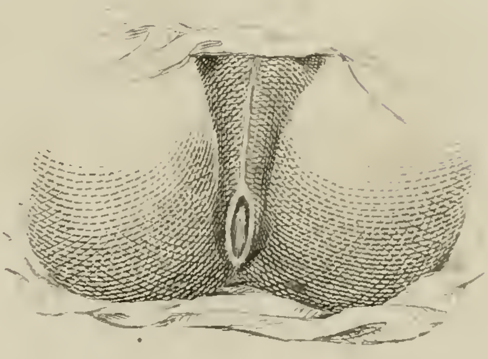


Fig. 4.



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W. H. Lizars sc.

general Treatment of Diseases of the Muscular Movement. By ROBERT HUNTER, Surgeon, and Lecturer on Anatomy and Surgery, Glasgow.

ON the 12th of April last, I was requested to visit Jean Brown. When I arrived at her lodgings, I found her in bed lying upon her back, and her head rolling from side to side upon the pillow, with a quick, regular, and uninterrupted movement. She was perfectly sensible, and could reply to any question that was proposed to her. I had not continued long in the apartment when the motions of the head became obviously accelerated; and one of the relatives hinted that a *fit* was about to appear. The words were scarcely uttered, when, with a strong convulsive movement, the patient sprung from her back, and sat up in bed. The rotatory motions of the head now became furious and alarming. They were executed with such immense rapidity, that it was difficult even for the eye to follow them. She appeared absolutely to be looking backwards and forwards, and in every direction at the same instant. The movements, while in the sitting posture, were not confined to the head, for the whole trunk likewise partook of the rotatory motions, the breech being the pivot upon which the whole turned. These convulsive motions continued about a minute, when they took a new but equally strange direction. The flexor and extensor muscles of the head and trunk were alternately called into action; and without the breech of the patient moving from its first position, her head was rapidly carried forwards to her knees, and backwards to the pillow, for about half a minute, when the paroxysm ceased, and left the patient greatly exhausted.

Such is a short description of a *paroxysm* with which the patient was affected when I first saw her; and I was informed that she had been subjected to above fifty that day, of a similar description. For the last three months the disease had been fast gaining ground; and so anxious and affected was the patient about the result, that in the most plaintive accent she said she would submit to any operation however painful;—that she would even allow herself to be opened alive, to get quit of so distressing a malady.

On relating the case to my friend Mr Stirling, one of the district surgeons of this city, he proposed to place her upon his poor-roll, and proffered his assistance in the treatment of the case. I of course eagerly embraced his proposal.

On the 19th of April we visited the patient, and took the history of her case. She is about 23 years of age, unmarried, and of a leucophlegmatic habit. Has been unwell for the last seven years, during which period she had been three times in the Glasgow Royal Infirmary, and likewise under the care of several eminent practitioners in town, from all of whom she received only partial benefit. The disease, she says, commenced in the lower part of the belly, in the uterine region, where she still complains of pain upon pressure, the pain being slightly increased at every menstrual period. No enlargement or hardness of the uterus, however, could be detected by any species of examination. After the uterine region had been affected for some time, an eruptive disease appeared on the external generative organs, the exact nature of which we could not learn, except that the eruptions were numerous, and resembled pimples. A few months afterwards, a pain commenced in the region of the liver, which has never been altogether removed, although it has frequently been relieved by the application of blisters. A seton, which still remains, was some months ago inserted in the hepatic region, and when it discharges copiously, is of considerable benefit. No perceptible enlargement of the liver exists.

The disease in the uterine and hepatic regions having continued about a year, a shaking commenced in the right arm, which, in the course of two months, likewise affected the left, and in three months more extended to the head, and gradually spread over the trunk and lower extremities. After the tremulous movements had thus extended to all the muscles of the body, convulsive paroxysms (such as I have described at the commencement of this paper) soon supervened. The paroxysms at first were short, and appeared after long and stated intervals. The intervals, however, gradually shortened till the time when I first visited the patient, when the paroxysms were so numerous, that she was scarcely ever free of them.

Whilst lying on her back, as she usually did when no paroxysm was present, the tremulous movements were generally confined to the head, which kept it rolling from side to side upon the pillow from morning to evening, and sometimes from evening to morning, with a regularity which forcibly remind me of the vibrations of a pendulum. When she lay upon her right side, her left side became affected with a violent tremor; and when she lay upon her left side, the right exhibited similar phenomena. As soon, however, as she turned upon her back, the movements were again confined to her head. Sometimes the motions of the head ceased, when one or more of the extremities became instantly affected with a similar kind of tremor; and when the tremors of the extremities ceased, or were arrested by force, the movements instantly recommenced in the head.

After these tremulous movements had continued for some time, a convulsive paroxysm generally arose without any apparent cause; it could, however, be easily induced at pleasure. So easily, indeed, could it be induced, that any attempt to interrupt the motions of the head, such as by the application of the finger to the hair, or head-dress of the patient, brought it on with tremendous violence; and if the paroxysm itself was interfered with, even in the slightest degree, its violence and duration were always increased. The very idea of being touched during a convulsive paroxysm, was contemplated by the patient with terror.

She frequently complained of dimness of sight,—of hardness of hearing, and of a considerable bluntness or torpidity of all the external senses. Her pulse was natural with regard to frequency, but weak and sometimes intermitting. Her tongue clean, but her bowels tending to costiveness.

As the nervous system appeared to be considerably disordered, I proposed that the patient's head should be shaved, and tartar emetic ointment rubbed on the scalp, and along the course of the vertebral column. As this treatment was calculated to affect at once the brain and spinal cord, the root of the nervous system, one ounce of the ointment was accordingly ordered to be rubbed, at first, into the scalp only. Owing to some mistake, a smaller quantity of the ointment than prescribed was rubbed in, on the evenings of the 19th and 20th. Little effect was accordingly produced on the scalp, and none on the disease. On the evening of the 21st one ounce more of the ointment was used, which, on the 22d, produced a large crop of pustules, with a decided effect upon the disease. The rolling of the head upon the pillow was now comparatively trifling, and she mentioned, with great exultation, that she had been affected with three paroxyms only during that day. One ounce of the ointment was again ordered to be rubbed into the scalp. On the 23d the patient was obviously fast improving; the motions of the head were scarcely perceptible, and the convulsive paroxysms reduced to two daily. One ounce of the ointment was ordered to be rubbed in *daily* till the scalp was completely covered with eruption.

This treatment was continued from the 23d till the 28th, during which period the patient remained without a paroxysm. On the 28th the tremor of the left superior extremity was very considerable, and often alternating with tremor of the head. She felt her general health worse, and complained of nausea and uneasy sensations about the head, which she believed were the precursors of a convulsive paroxysm. The experiment of interrupting the motions of the head was unluckily made, which induced a violent fit; but we were of opinion that it did not equal the former paroxysms, either in intensity or duration.

As the scalp was completely covered with eruption, the treatment was now extended to the region of the spinal cord, and one ounce of tartar emetic ointment ordered to be rubbed daily into the skin, from the occiput to the sacrum, till great irritation was produced.

From the 28th till the 30th, the quantity of ointment above specified was rubbed into the back every evening, without producing much effect upon the skin, or any farther change upon the disease. On the 1st of May, however, the patient complained of great pain from the ointment. Her back was covered with pustules, and the shaking now confined to the left fore-arm and hand. When the hand was kept from moving by force, a slight degree of motion was still induced in the head; but when the muscles which are inserted into the occiput were likewise compressed, the motions of the head ceased also. This was the first time, for the last nine months, that all irregular motions of the body, by any contrivance whatever, could be made to disappear.

From the apparent good effect of momentary compression, a bandage was tightly applied from the fingers to the shoulder, for the purpose of trying the effects of a more equable and permanent compression than could be made with the hand. On the 2d of May, the tremor was still confined to the left fore-arm and hand, but not perceptibly diminished in violence. As the bandage was of no benefit, it was removed. The patient, however, was in much better general health, and higher spirits, than we had ever seen her. At our request, she rose from her bed and walked with a steady step across the room. Either from agitation or the effects of muscular exertion, she had scarcely sat down again when a violent shaking commenced in both superior extremities. When she crossed her arms, and pressed them firmly to her breast, the shaking passed from the upper to the lower extremities; and when her feet, by external force, were prevented from moving, the shaking returned to her arms. No tremor of the head took place. These tremulous movements continued only while she sat out of bed; for when she laid herself upon her couch, the motions were confined, as before, to the left fore-arm and hand. As the patient laboured under considerable debility, probably the united effects of confinement and disease, at the suggestion of Mr Stirling, tonic medicines were had recourse to, and half a drachm of the carbonate of iron three times a day was prescribed. Notwithstanding the pain which she felt from the state of her back, half an ounce of the ointment was daily rubbed in upon the back till the 7th of May, when her general health was found improving, and her strength so far increased that she could sit, and even walk in the open air for some time. The tremor, in a very slight degree, still existed in the left fore-arm and hand; and she complained, occasionally, of pain in the right hypochondriac and uterine regions.

The eruption on the scalp being now nearly healed, one ounce of tartar emetic ointment was ordered to be rubbed into the upper and inner part of the thigh, for the double purpose of removing the uterine irritation, and preventing a relapse from the drying up of the head.

On the 11th of May, the tremor left the arm and every part of the body. The patient was so well that she could sit up in bed, knit stockings, sew, or engage in any similar domestic employment. She complained, however, of considerable general debility, as well as pain in the right hypochondriac and uterine regions, although she conceived, that the pain in the uterine region, since the application of the ointment to the thigh, was neither so violent nor so constant. One ounce of tartar emetic ointment was ordered to be rubbed into the other thigh, and the carbonate of iron to be continued.

On the 20th of May, when the patient was next visited, she was found nearly well. She could sit out of bed, and even walk about the house for hours together. She thought she was as free of "the nerves" as ever she was in her life. To prevent a recurrence of the disease, she was recommended to have her head shaved a second time, and an ounce of tartar emetic ointment to be rubbed into the scalp, and along the course of the spine; to continue the carbonate of iron; and as medical advice was no longer regularly required, she was urged to go into the country to improve her general health. *

The successful termination of this long continued and extraordinary case is attributable, I conceive, to the tartar emetic ointment alone. Every *tonic* of note, and almost every ingredient in the Pharmacopœia, had been tried for the last seven years, under the ablest management, and tried in vain. As soon, however, as the eruption appeared on the scalp from the use of the ointment, the disease was obviously checked; and as the same treatment was continued and extended over the course of the vertebral column, the disease gradually diminished in violence, and at last disappeared.

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* Mr Hunter, in a letter of 29th November 1824, says, that he is now fully justified in considering the cure to be complete; as, during the intervening six months, the patient has not had the slightest tendency to relapse, and is now strong and healthy.

I have presumed to call the disease *Rotatio*, as being expressive of the particular kind of movement which constitutes the principal symptom of the disease. It is undoubtedly a form or modification of *Chorea*, but so different from the common form as to be easily mistaken for a different affection. "Chorea" is a term so vague and undefined as to be applicable to almost any kind of convulsive movement; and accordingly, we find it applied to diseases of the most opposite descriptions—to diseases of the mind as well as those of the body. "Chorea Sancti Viti" was at first introduced into medical nomenclature, according to Horstius, in consequence of a cure said to be performed on women of disordered mind, who repaired to the chapel of St Vitus, near Ulm.

Every practitioner must have observed the common form of chorea, so admirably described by Dr Hamilton. * But there are certain forms and modifications of the disease, so uncommon, that many in the profession, I am persuaded, have scarcely heard of them. They are at the same time so curious that they deserve some consideration.

Frequently do we find chorea complicated with various disorders—at one time with some strange mental abberration, as in the case related by Thermier, the patient being of a deep melancholic temperament, and the limbs kept in a state of continual snatching and trepidation †—at another time, with the hysterical diathesis, and receiving some strange modification from that disease. Dr White of York has given us a very striking example of this mixed affection, as it appeared in a lady about 42 years of age. She complained of violent pain in the right side of the face, and of universal erratic aches and soreness. There was a scorching heat all over the skin, except from the feet up to the ankles, which were as cold as marble. Had frequently a violent pain in loins, which often shifted from hip to hip, the leg of the aching side having been so much affected with numbness, that she dragged it after her in walking. She faltered at times in speech, but this was generally of short duration. All the muscles of the body evinced in succession convulsive motions. Thus her face was first affected; then her nose, eyelids, and head, which was thrown forcibly backwards, and often twitched from one side to the other with exquisite pain. From this quarter the convulsive action removed, first into one arm and then into the other; after which, both legs immediately became convulsed. In this manner all the parts of the body were affected by turns. She was at all times perfectly sensible, and knew what limb was going to be attacked next, by a sensation of something running into it from the part already convulsed, which she could not describe in words. "No words," says Dr White, "can convey an adequate idea of her odd appearance; and I do not in the least wonder, that, in the times of ignorance and superstition, such diseases were ascribed to supernatural causes and the agency of demons." *

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* On the Utility of Purgative Medicines, cap. iii.

† Consil. lib. ii. cap. xi.

In his excellent work De Sedibus, &c. Morgagni relates a singular species of the disease. It is known by some authors under the name of Malleatio, the convulsive paroxysm principally consisting of a striking of the knees with one or both hands, as with a hammer. In Morgagni's case, the convulsive movement passed on to the sound hand, if the finger of the affected one was extended, and when the motions were attempted to be arrested by force, the convulsions became both more violent and general.

A still more singular form of the disease is said to occur in some parts of the north of Scotland, and is described in the following terms. "Those affected first complain of pain in the head or lower part of the back, to which succeed convulsive fits, or fits of dancing at certain periods. During the paroxysm, they have all the appearance of madness, distorting their bodies in various ways, and leaping and springing in a surprising manner, whence the disease has derived its vulgar name, "Leaping Ague.' Sometimes they run with astonishing velocity, and often over dangerous passes, to some place out of doors, which they have fixed on in their own minds, and then drop down quite exhausted. At other times, especially when confined to the house, they climb in the most singular manner. In cottages, for example, they leap from the floor to what are called the baulks, or those beams by which the rafters are joined together, springing from one to another with the agility of a cat,

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* Edinb. Med. Comment. vol. iv. p. 326.

or whirling round one of them with a motion resembling the fly of a jack." *

A still more singular case is related by Dr Watt. † It is probably the most extraordinary of the kind on record. He calls it Periodical Jactitation. The patient was a lively girl of about 10 years of age. The disease commenced with an intolerable pain in the head, and constant inclination to keep her body in the erect posture. About a month after the commencement of the disease, she was seized with a propensity to turn round upon her feet like a top, and felt pleased and gratified when her relations attempted to increase the velocity of her movements. After a month's continuance, these motions ceased, when the headach returned with increased violence. Two months after this, a new kind of convulsive motion arose. It consisted in the patient lying across the bed, and turning round like a roller, moving in this manner rapidly from one end of the bed to the other. These motions were not confined to the patient whilst in bed. On the floor of the house, in the open air, and even in the shallow part of a river, where they tried the experiment, the motions still continued with uninterrupted regularity. After continuing in this state for about a month, the convulsive motions assumed an entirely new appearance. The patient now lay upon her back, and, by drawing her head and heels together, bent herself up like a bow, then allowing her head and feet to separate, her buttocks fell with considerable force on her bed. She repeated the same movements twelve or fourteen times in the minute, sometimes for fourteen hours together. These motions continued for about five weeks, and and were succeeded by others of a still more whimsical description. She was now seized with a propensity to stand upon her head, with her feet perpendicularly upwards! As soon as her feet gained the perpendicular, all muscular exertion was withdrawn, and the body fell down as if dead, her knees first striking the bed, and her buttocks striking her heels. This was no sooner done, than she instantly mounted up as before, and continued to exercise herself in this manner, sometimes for fifteen hours a day, at the rate of from twelve to fifteen times in the minute.

The principle which ought to guide us in the treatment of chorea, has, I think, never been sufficiently explained. The profession is certainly much indebted to Dr Hamilton for calling their attention to the state of the intestinal canal in this, as well as in many other disorders; but it must be admitted, that

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* Edinb. Med. and Surg. Jour. Vol. 3.

† Medico. Chirurg. Trans. Vol. 5.

a deranged state of the intestinal canal is only an occasional exciting cause; and, even when this cause has for some time operated, how often do we find the removal of the cause producing no apparent effect upon the disease? Our patient was tried for a long period, we understand, with purgatives, without receiving the smallest benefit.

Tonic and alterative medicines are as frequently useful in this disease as purgatives; and the reason probably is, that debility of an organ, or of a system of organs, is often an exciting cause, and, by raising the energy of a part, or of the whole system, the exciting cause is removed, and the parts restored to their natural and healthy function. At the same time, how frequently do we find the most powerful tonics, such as the preparations of iron, of zinc, of copper, of silver, and of arsenic, of no avail? And when they do succeed, it is most frequently by effecting, after long and protracted courses, what I consider can be done in a few days by external applications.

Another plan of treatment is founded on the principle of allaying the irregular muscular movement by the use of antispasmodics and sedatives, such as musk, belladona, foxglove, and opium; but the disrepute into which this practice has fallen, is a manifest proof that it never has been of great or essential efficacy. The utmost, I believe, that can be said in its favour, is, that it may produce a palliative, but rarely a radical effect.

The treatment of chorea, by rubbing tartar emetic ointment into the scalp, and along the course of the vertebral column, is, so far as I know, new, and promises, did we dare to generalize from one case, to be remarkably successful. The treatment is founded on what I consider to be sound and incontrovertible general principles, and, what is also of very great moment, the same treatment, I presume, will be found applicable to every variety of morbid muscular movement.

From the brain and spinal cord, the nervous fluid or influence, on which muscular motion is in a great measure dependant, is incontestably derived. The nerves are merely the conductors of this fluid. It is perfectly clear that they themselves are incapable of imparting it; for, insulate a nerve from the brain or spinal cord, and the muscles upon which that nerve is ramified, are instantly and permanently paralyzed. Admitting, then, the brain and spinal cord to be the fountain from which all nervous influence springs, we can find no difficulty in conceiving, how a structural or functional derangement of these parts should give rise to irregular movements of the muscular fibre. If this fluid were not duly secreted, or were prevented from arriving at the muscles, paralysis would be the consequence:

if it came forth too sparingly, or in an irregular manner, weakness and tremulous movements would be induced: or were it sent out too copiously, convulsions would be the result. In all *idiopathic* diseases of the muscular movement, we must consider the brain and spinal cord as the seat of the affection; and the only rational method, surely, of counteracting and curing such diseases, is to recal the brain and spinal cord to their natural and healthy function.

It must be admitted, however, that the great majority of diseases of the muscular movement are *symptomatic* only, or dependent merely on some local ailment. The irritation of teething, of worms in the intestinal canal, or of a scratch or puncture on the hands or feet, will give rise both to partial and universal convulsions. In such cases, the convulsions are not dependant at first on any derangement of the brain and spinal cord, but probably on some local derangement of the conductors of the nervous influence, that is to say, of the nerves of the part. The irritation which acts upon the nerves of the part, probably modifies the quantity, or may even vitiate the quality of the nervous power; and this morbid action, whatever it may be, once commenced, is apt to spread like almost every other morbid action, till it affect the root of the nervous system itself. It is only on such supposition, I presume, that we can account for the fact, that with the removal of the local existing cause of any convulsive disease, the convulsive movements do not always cease.

I do not wish to be understood as inculcating, that the removal of the exciting cause in the treatment of symptomatic convulsive diseases is of no avail. I consider the removal of the exciting cause as of the first importance; but after the cause has been removed, and the convulsive movements still continue, I could wish it enforced that our attention should immediately be directed to the root of the nervous system itself. There is one grand reason which I think should induce us to attend to the state of the brain and spinal cord, even in symptomatic convulsive diseases, I mean the tendency which any irritating cause has to act upon the extreme points of any nervous chain to which it may be applied. In inflammation of the liver, the pain is felt principally in the shoulder, at the most remote point of the phrenic nerve from the seat of the disease. In calculus of the bladder, one of the most constant symptoms is an itching in the *glans penis.* Worms in the intestinal canal create, it is well known, an irritation in the lining membrane of the nostrils. The sudden applicationof cold water to the surface of the body, will excite the bladder to contract and expel its contained fluid. These and other facts that might be mentioned, are all explicable on the general principle, that any irritating cause which acts upon a chain of organs connected together by nervous sympathy, the pain and danger are seated uniformly at one of the extremities of the chain, and one of the extremities cannot long be affected without the disease extending to the other also. In marasmus, for example, we find the disease commencing sometimes in the digestive, and sometimes in the assimilative organs; * but in whatever extremity of the chain the disease commences, it is generally not long ere the other extremity of the chain is also affected.

In these convulsive diseases in which the irritation is confined at first to one organ, let us suppose the stomach or uterus. These organs, then, may be considered the extreme points of a set of nerves, whose other extremities arise from the brain or spinal cord. When the irritating cause has operated for a certain period on any of these organs, the irritation is imparted by sympathy to the other extremity of the chain, that is, to the point of the brain or spinal cord from which such nerves originate; and the irritation, when thus begun, will extend, if not counteracted, from that point over the whole root of the nervous system. This fact, I think, is beautifully exemplified by what takes place in tetanus. A man receives a scratch or puncture on the great toe. In a few hours he is affected with a spastic action of the muscles of the lower jaw. Here the irritating cause tells first upon the extremity of a long and complicated chain of nervous fibres, which, however, can be easily traced. The irritation travels first either along the course of the great sacro-sciatic, or anterior crural nerve, till it reaches the pelvis. In the pelvis numerous branches of the great sympathetic unite with these nerves. The irritation passing on then to the great sympathetic, finds its course along a continuous line of nervous matter from the pelvis to the cranium. It is well known, that the great sympathetic has a direct communication with the 5th pair; so much so, that it is usually said to take one of its origins from that pair. The irritation, then, would pass from the great sympathetic to the 5th pair; and according to the general law which we have already noticed, would tell more particularly upon the remote branches of that nerve; that is to say, upon the branches which ramify upon the temporal muscle, and which afterwards pass to the crown of the head.

This, it must be admitted, will only account for the spasmodic action of the temporal muscles: How, then, do we account for the spasmodic action, in tetanus, passing on to the other muscles of the body? After the irritation, then, has continued

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* Good's study of Medicine.

for some time at the extreme ramifications of the 5th pair, the same morbid irritability has a tendency to pass to its other extremity, that is, to the origin of the nerve in the brain. The brain at that point becomes affected, and the diseased action extends over the brain and spinal cord, when all the muscles of voluntary motion become influenced by the same convulsive movement. If this view of the pathology of tetanus be correct, our curative means should be principally directed, 1*st*, to that part of the body where the original irritating cause acted; 2*dly*, to the muscles of the lower jaw; and, 3*dly*, to the brain and spinal marrow: and the grand curative indication, I conceive, should be, to excite a new action in the immediate neighbourhood of all these parts.

The indication of exciting a new action in the vicinity of the brain and spinal marrow, is not applicable to tetanus only, but to all diseases which consist of an irregular action of the muscular system. Let us suppose, that all such diseases may be arranged into three classes.

1*st*, When the muscular action is weak and tremulous.

2*dly*, When that action is strong and rigid. And,

3*dly*, When it consists of a mixture of both; at one time weak and tremulous, and at another strong and rigid.

Some physiologists have believed, that the flow of the nervous power, in the healthy state, is in an undulatory course, with short and irregular pauses between each undulation; while others have maintained, that it is sent forth in a continuous stream. It is unnecessary at present to inquire which of these opinions is correct, or whether either of them is well founded. It is enough for our present purpose to suppose, that when the nervous power is sent forth in smaller quantities than natural, the tonic power of the muscles cannot be permanently supported, and a tremor or oscillation takes place, just as a shaking of the hand occurs after powerful and long-continued exertion, when the nervous supply is not adequate to the demand. On this principle alone, I think, all diseases of the first class may be accounted for.

When the nervous influence is sent forth too copiously, a high and long-continued action of a muscle, or set of muscles, is induced, giving rise to diseases of the 2d class.

In the great majority of cases, there is a mixture of the tremulous and convulsive movements, which forms our 3d class of diseases. And this fact, more than any other, has tended to convince me, that all irregular movements of the muscular system are principally dependant upon an irregular supply of nervous power to the muscular fibre. After the nervous power has been sent forth for some time too scantily to maintain a tonic action in the muscular fibre, and thus produced a tremor of a part, or of the whole system: From the former retardation, probably, it rushes forth afterwards, at intervals, in copious profusion, and thus occasions in the muscles, which were formerly tremulous, rapid and strong convulsive movements.

If there is any truth in these observations, the state of the brain and spinal cord, in all diseases of the muscular movement, above all other circumstances, should be attended to; and the only rational method of breaking up the morbid action which obtains in these parts, is to excite a new action, either in the diseased parts themselves, or in their immediate neighbourhood.

Morbid muscular movement may be occasioned by a diseased state of the brain, or its prolongation; by a diseased state of the tunics which surround these; or by a diseased state of their bony encasement. At a future time, I shall prove the truth of these observations, by references to a number of important cases and dissections.

The grand indication, then, being to excite a new action in the vicinity of the brain and spinal marrow, different plans of treatment will suggest themselves to different practitioners. I have indeed a great partiality for the use of tartar emetic ointment; but I do not however suppose that it possesses any specific virtue over such diseases. Blisters—the moxa—the actual or potential cauteries, will produce, in all probability, the same effects; and in some diseases which run their courses with uncontrollable fury, as tetanus or hydrophobia, the potential or actual cautery may be found preferable to all external applications. But for the majority of diseases of the muscular movement, the tartar-emetic ointment will be found to possess superior claims to our consideration. It is less formidable in the eyes of the patient even than a blister, and infinitely less so than the actual cautery. It is easily managed and surer, and can be made more speedy in its operation than a blister, not to speak of the friction by which it is applied, and to which, probably, some little efficacy may occasionally be attributed.

47, *North Hanover Street, Glasgow.*

VII.

On Chorea, with two Cases to Illustrate the Nature and Treatment of that Disease. By Thomas Jeffreys, M. D., Liverpool.

The following paper was hastily drawn up, and read to a few of my medical brethren in the month of March 1823, with the view of contributing towards the encouragement of such communications among those who associated themselves exclusively for the purpose of similar subjects; but as that society has ceased to meet, for reasons which is quite unnecessary here to enter upon, I am encouraged, by an able and experienced friend and physician, to offer it for the readers of this Journal, with very little alteration of its original dress.

Previous to entering immediately upon the subject of chorea, it may not be irrelevant to my purpose, to offer a few remarks upon the nature of spasm; and in doing so, I shall adopt the well known terms of *Tonic* and *Clonic.* The former of these, it is scarcely necessary to say, is understood to be a fixed and rigid contraction of a muscle, capable of neither extension nor relaxation, from the action of antagonist muscles; and such as we see in tetanus and its varieties, episthotonos, emprosthotonos, and trismus; but none of these, I conceive, belong to the spasm we have to consider in the disease named "CHOREA."

The clonic spasm, however, comes nearer to my subject, because it consists of a morbid state of contraction and relaxation of muscular fibres, violent and involuntary, consequently has had the appellation of "Motorii" by *Linnæus*, but perhaps more properly by *Cullen*, that of "Convulsion." It would seem, however, more suitable again to subdivide the clonic spasm into something resembling acute and chronic, of which I hope I shall be able to give proof, before I bring the subject of my paper to a close, more especially as it was originally intended to form the leading feature of my subject. Therefore, although I now proceed to the consideration of the disease "Chorea," I fear I shall be compelled to treat it with greater brevity than the subject deserves.

Chorea is a disease said to be principally confined to the earlier periods of life, and for the most part antecedent to the age of puberty. This, no doubt, is in a great majority of cases the fact; but numerous instances are recorded of its occurring from the period of puberty to the age of twenty and upwards; and Cullen even mentions his having seen it in a robust man of forty-two.

I will pass over the ridiculous opinions of Paracelsus and Horstius as unworthy of comment. Drs Mead and Pitcairn thought the disease to belong to paralysis; and I am not quite sure that if they are not correct, there is good reason for such a conjecture, at least in that variety which I shall venture to denominate chronic; but in that species which authors usually describe, and which, as above hinted at, chiefly occurs before puberty, I must follow those distinguished veterans, Sydenham and Cullen, in thinking it a decided instance of clonic spasm, or convulsion. In very young subjects, it is said often to arise from local irritation of the alimentary canal; violent affections of the mind in young girls, such as fear, or anger, and also accompanied with general debility, and often occasioned by sympathy from seeing others affected with the disease. Such causes no doubt may produce symptoms resembling chorea, but this is not the disease I aim at. I would wish to consider it purely as an idiopathic disease, depending upon a peculiar mobility, irritability, or perhaps debility of the nervous system. I say *perhaps*, for I do not know how we can reconcile the curative remedies from Sydenham down to Hamilton, upon the simple and pure ground of debility. The idea of debility seems to have originated from the observation of its often occurring in those whose natural good health and vigour of constitution, have suffered either from confinement, or from food of deficient nourishment; for it is not observed to be a disease particularly confined to either sex. A close observer will generally find this disease preceded by some derangement of the *primæ viæ*, unpleasant nervous sensations, particularly about the spine, with a sense of tingling approaching to chilliness; the bowels too are torpid, though not perhaps to obstipation; and although the circulating system does not evince derangement, there are palpitations, giddiness, pains of the head and face; but I am not aware that arterial action is necessarily accelerated. To these succeed the irregular convulsive motions, which, if only once seen, are not easily forgotten, from the singularity of the gesticulations, which often, by common observers, are wantonly converted into a subject of merriment, at the expense of the sufferer, but which afford the practical physician an extensive field for observation and investigation.

In the case of a young married woman, aged 17, who consulted me about 12 years ago, I find she had a perpetual restlessness of her right arm, but not much shaking, accompanied with occasional dragging of her right leg, and sometimes succeeded by running, which she said was easier to her than walking. Her catamenia ceased immediately after her marriage, two months previous to the attack; and having vomitings, with a brown areola surrounding the nipple, there could be no doubt of her being pregnant. She was much distressed at being noticed, and the complaint was not subdued in less than seven weeks, which was effected by purgatives, assisted occasionally by antispasmodics.

There is no end to the variety of motions which occur, and no muscle I believe may be said to be exempt from such spasms, consequently we find it often beginning with those of the face and extremities, but it frequently affects those of the trunk and head; generally, however, it will be found, that those muscles which were first affected, continue to be so as long as the disease exists. Sleep, as far as my experience goes, has generally suspended the spasm; but I am indebted to my friend Dr Bardsley senior, late of Manchester, for the remark of his having seen it otherwise. Articulation and deglutition are often impeded; the eye loses its lustre, the countenance is less expressive, and ultimately fatuity invades the patient. I have no experience of its fatal termination, but I have very little doubt of its continuing for life, if not cured in its early stages. I am not a little surprised at the limited number of cases which fell within the treatment of the late Dr Gregory of Edinburgh, which he states in his Lectures (that I attended in the year 1795) not to have exceeded six or seven; at the same time, however, it amply accounts for the brief manner he dismisses the subject, referring us to Dr Salt's Thesis, which, he adds, he believes to be rendered much more valuable, by the remarks of the late Dr Monro, who instantly cured chorea from dentition, by lancing the gum. It is certainly a disease of comparatively rare occurrence; for I observe, in the year which it fell to my lot in rotation to arrange the diseases of the Dispensary of this town, only *eleven* cases were reported by six physicians. Dr Hamilton, whose experience, views, and treatment of chorea are far more extensive than any other author I have met with, states his having only seen about twenty cases, which he considers to be more than fall to the lot of many others. I should think I have seen about the same number myself, although I can refer positively only to *fifteen,* which have been the subjects of my own particular treatment, in not one of which do I perceive an unsuccessful termination. I might say much more upon the history of this disease, by extending my remarks to the various contortions and gesticulations, we seldom fail *to see modified* in every case we meet with, but I should be wasting the time of the readers of this Journal unnecessarily, as I am convinced there are scarcely any who have not both read and studied the admirable definition of Cullen, which is in itself so complete an history, that it supersedes the necessity of farther detail.

Cure.—In the cure of chorea, as in every other disease, it is of the first importance that we should have correct ideas of the proximate cause. Unfortunately however for our art, the most experienced physician has too often recourse to antecedent results, or, what is still worse, conjecture; and it is this unavoidable doubt, which too often gives the palm to the cunning of empiricism, when it ought to rest upon far more noble views.

In those cases where local irritation is the cause, such as dentition, worms, or any acrid matter contained in the alimentary canal, it is clear that the simple removal of such causes, will at once effect a cure. Dr Darwin, however, in the 4th volume of his Zoonomia, says, that it *frequently* is a sequela of itch too speedily cured; and relates a very severe case which occurred in a girl aged about 18, who acquired chorea (during the time she was wearing a mercurial girdle for the cutaneous disease) to such a degree, that her speech and mind became affected as well as her limbs, but which smyptoms entirely subsided upon her being exposed to, and receiving the itch again. But, as in many instances, the disease is very slow in its progress, it is, I think, fair to suppose, that there is really a morbid state of the nerves themselves; and whether this be "*aliquis humor in nervos irruens*" or not, I will not venture to assert; but it is clear to me, from what I have read and what I have seen, that *purging*, both active and continued, is the first remedy we should have recourse to; and although I do not by any means intend to discountenance bleeding, on the supposed existence of a morbidly irritable state in the nerves themselves, yet I do not recollect that I ever found it necessary to have recourse to the use of the lancet; and scammony, with submuriate of mercury, has been what I have mostly depended upon. I must however say, that I have not *always* found purging successful; but whenever I had recourse to other remedies, I was not always satisfied that the cure would have been effected without having previously had the bowels fully, frequently, and effectually evacuated. Blisters, I know, are recommended by good authority here; and accordingly I have used them, and thought they did some good; which occurred in the case of an infant under two years of age, but not with any decided effect: zinc and valerian, however, afterwards completed the cure. Whenever I have been driven to the use of tonics, and when the age of the patient would admit of it, I think I have seen very decided advantage from the ammoniaret of copper, beginning with very small doses, gradually increased until the disease was subdued. This, however, I must add, requires both time and circumspection, and should never be had recourse to until purgatives have been pursued with active diligence, for not only days, but even weeks.

So many instances of the good effects of the *subcarbonate of* *iron* in this class of diseases, are now before the public, that it may appear to some of the readers of this Journal, a waste of time to dwell upon any other remedy; more especially as there can be little doubt of its introduction and confirmation being considered a laudable effort, and, I hope, lasting advantage to the patient and practitioner; but that even this will fail occasionally, I think I have reason to think, as the following case will show, the publication of which has been delayed longer than I wished, in hopes of being able to communicate its termination. Although I cannot say my patient is quite free from complaint, she is sufficiently recovered to enjoy society; and to elucidate the good effects of some of the remedies spoken of in the preceding imperfect outline, I therefore proceed to transcribe it from my notes, up to the present date.

May 9th, 1823.—I was hastily sent for to a young lady aged 17, whom I found so agitated, that she could not rest in a sitting position for a single minute, but was constantly obliged to be kept walking from room to room, as the only means found to render tolerable a constant spasmodic affection of the whole frame, but more violent on the right side than the left, the leg of which is most affected when sitting; but when walking, the hand is, somewhat involuntarily, constantly lifted to the face, and by continually rubbing the chin, she fancies the spasms are a little quieted. There is a peculiar catching of the breath, without dyspnœa, and very different with what we meet with in pure hysteria. Pulse at present 110, and rather full, evidently accelerated by the exercise and agitation; tongue rather white; bowels confined; *catamenia adsunt.* This affection has existed full six months, more or less, but for the last week has returned daily with increasing severity. She has been under the care of a respectable apothecary most of the time, and has also occasionally consulted a physician in this town, who appears chiefly to have depended upon the tonic plan of treatment. The medicine I prescribed was merely a mixture composed of *spt. ammon. fœtid. tinctura columbæ,* and *aqua menth. piperit.* under the impression that it was not altogether unconnected with hysteria; consequently it might serve to allay the irritation until the full appearance of the catamenia was established. Two pills were also taken at bedtime, composed of *extract. colocynth. comp. gr. x. hydrargyri submuriatis gr. ij.* The effect of these medicines certainly produced some alleviation of the symptoms, but by no means equal to my anticipation and wishes; and my note on the 10th is, pulse 72, but not full; is somewhat better, but still shakes;

tongue affected; bowels opened twice from the pills. *Cont. mistura, et pilulæ horâ decubitûs.*

11th.—Pulse 80, rather full; tongue better; had four stools yesterday, and has to-day *no* shaking; did not take the pills last night. *Capiat pilulas protinus, et iterum cras mane. Contin. mistura.* At four *p. m.* was again seized with the spasmodic shaking, and a peculiar difficulty of breathing, supposed to be owing to a sudden and irregular spasmodic action of the diaphragm; pulse about 80; tongue again affected. *Capiat misturam quaque hora.* In three hours after the shaking and dyspnœa were better, being on the point of taking the third dose of the mixture, which consequently was discontinued, and a draught of *mistura camphoræ, tinct. castorei Ph. Ed. spt. ætheris comp.* and *tinctura camphoræ comp.* was ordered at bedtime.

12th.—Pulse 84, rather full; tongue clean; is quite still now, and was so immediately after taking the draught last night, which also produced sleep; but she omitted taking her pills this morning, and has had no stool; *catamenia cessaverunt.* A brisk cathartic draught was given immediately, formed of infus. of senna, tinctures of senna and jalap, with a neutral salt; and a mixture similar to the draught of yesterday, substituting the *spt. lavand. C.* for the *tinct. camph. comp.* to be taken every hour. *Two* pills, composed of equal parts of *extract. colocynth. comp.* and *pilul. aloes cum myrrha,* were ordered to be taken night and morning.

13th.—Pulse 82, not so full; tongue still affected; no shaking either yesterday or this morning; was purged four times yesterday from the draught, and once this morning from the pills; consequently has not found it necessary to take the mixture. *Rep. pilul. hora somni, nisi prius responderit alvus ad 3tiam vicem.*

14th.—Pulse 82 to 84; tongue affected so as to indicate irritation, but not much loaded; no shaking; three stools yesterday; only one to-day. *Rep. pilul. hora decubitus, et haustus catharticus cras mane diluculo.* Being convinced for these two last days, partly from the peculiarity of this nervous affection, and partly from the power she possessed of diverting the spasms by close attention in playing on the piano forte, or other interesting objects, but particularly on account of those remedies given in hysteria only affording transient relief, I could not avoid thinking it far more strongly resembled the clonic spasm of chorea, than the frantic paroxysm of hysteria; I therefore at once determined to steadily pursue a regular and continued treatment by purgatives, as above directed, increasing or diminishing them according to their effects.

15th.—Pulse 80, and *intermitting;* some nausea from the draught taken this morning, but only one motion yet; an unexpected visit of her former medical attendant with me was supposed to have caused the altered pulse, but she herself imputed it to the nausea from the draught. The shaking again returned yesterday, and was speedily stayed by the mixture, and again at night with the same relief. Before we left her, the pulse rose to 100, and the tongue was more loaded. Repeat the pills to-night.

16th.—Pulse 100, and she is very irritable; but the tongue now begins to clean, and she feels better, though she had some return yesterday, which the antispasmodic mixture relieved. Took two pills also this morning without much effect. Repeat the draught immediately.

17th.—Pulse 86, firm and regular; tongue nearly clean; *five* stools from the draught of yesterday, and one this morning from the pills. No shaking to-day and very little yesterday, which the mixture partly abated, but the purging completely removed. Repeat the draught immediately.

18th.—Pulse 76, firm and regular; tongue quite clean; was purged four times yesterday, and was unusually still and well, until tea-time, when an immoderate fit of laughter brought on the shaking, but which a single dose of the mixture immediately stilled. The draught not being yet taken was ordered immediately.

19th.—Pulse 77, tongue clean; passed yesterday much better; rode out in a gig, and felt very drowsy after it; had only a slight return of shaking in the evening, which, as before, one dose of the mixture quieted; and she was purged four times from the draught, which is now directed to be taken *daily.*

21st.—Pulse 72, and steady, both as to frequency and strength; tongue natural; omitted the draught yesterday, having taken three of the pills the preceding night, and two yesterday morning, from which only two evacuations were procured; shook only a very little in the evening, which went off without taking the mixture. Repeat the draught immediately. As she was now considered rapidly convalescing, I ordered her *pulveris valerianæ ʒss. Zinci oxydi gr. iij. bis quotidie.*

23d.—Pulse varying from 72 to 76; tongue natural; no shaking either yesterday or the day before. Her spirits are good, and her appetite is improving; the powders agree well with her; bowels not opened to-day. *Rep. haustus protinus et pulveres bis die ut antea.*

26th.—Pulse 80, but not full; tongue a little affected, but not loaded; she has had slight returns of shaking for the last two days which generally comes on in the evening; but which the mixture never fails to relieve; and she has taken the draught with good effect on the bowels. *Continuentur haustus et pulveres ut antea.*

28th.—Pulse 80, tongue again a little loaded; and although she has felt better for these two last days, she still is not without much disposition to a return of her complaint, more especially when she is unemployed. *Continuentur haustus et pulveres ut antea.*

> ℞ *Pilul. aloes cum myrrha. Ferri sulphatis āā ʒi. Gum. galbani ʒss. ft. pilul. xxx. Capiat iij. vel iv. quaque nocte hora somni.*

30th.—Pulse and tongue both natural; felt quite well yesterday, and continues so to-day. The draught had a good effect but the pills very little.

> *Continuentur pulveres et pilulæ ut heri, necnon haustus catharticus cras mane.*

June 2d.—Pulse about 80, tongue natural; and she has had almost no return of shaking for the last three days. Bowels natural; nor do they appear to be much moved by the pills.

> *Rept. haustus protinus, et pulveres. Augeatur dosis valerianæ ad* ℈ii. *Continuentur pilulæ.*

5th.—Pulse 74, tongue nearly natural; feels quite well to-day, but not so yesterday, although she had no shaking; bowels only opened once daily.

> *Contin. pulveres et pilulæ.*

9th.—Pulse 88, rather full; tongue and bowels both natural; little or no shaking, but felt rather unwell yesterday. *Catamenia adsunt.*

> *Omittantur medicamenta.*

12th.—Pulse 80, not full. *Catamenia cessaverunt.* Tongue natural; belly rather bound, and she has had some agitation these two last days.

> *Capiat haustum catharticum protinus, et repr. paucis diebus, si tumor redierit, vel alvus postulaverit.* ℞ *Pulveris gum. myrrhæ, pulveris castorei āā ʒi: Pulveris ferri sulphatis, extracti anthemidis āā ʒss; Syrup. q. s. ft. pilulæ xxxvi. Capiat iij. bis quotidie. Bibat infus. cusparii cyathum vinosum bis die, post pilulas.*

16th.—Much better to-day and yesterday, but had on the 14th singultus, and a threatening of her nervous complaint, which the fetid mixture removed; did not repeat the draught. *Continr. mistura et pilulæ.*

19th.—She was now considered as convalescent, and requested merely to continue the pills and infusion a few days, gradually leaving them off.

She was furnished also with some opening pills of aloes, guaiacum, and gamboge, to be taken occasionally; and I took my leave, recommending regular exercise, with change of scene and air. From this time until the end of September, she resided on the seashore, for the benefit of the air and bathing, and, although she very reluctantly complied with the latter, it certainly greatly invigorated her general health. It is true, that on the 20th of August the *pilul. galban. comp.* and *tinct. ferri muriatis* were ordered, which she took until the return of the catamenia on September the 9th, being one week beyond her usual period, and she experienced considerable agitation from irritability, but no shaking, as before. Bathing being much dreaded, was discontinued, and some ammoniated copper pills were ordered, together with a liniment composed of *Liniment. saponis comp. ℥iiiss. Tinct. lyttæ ℥ss. Extract opii. Conii āā ʒss. M.* rubbed night and morning down the spine, from which she found almost immediate relief; and on the 29th I considered her complaint so far removed as to allow her to enjoy society as usual. I discontinued my attendance.

September 21st, 1824.—Twelve months having now elapsed since I visited my patient professionally, and she still continues to enjoy society as formerly; nor has she any shaking, but manifests at times more irritability than natural. The idea of having the slightest trace of disease remaining distresses her so much, that I prescribed valerian and subcarbonate of iron, which she has now taken for about two months, with, I believe, good effect, and she is now upon a visit in the country, where she partakes of every amusement which presents itself, and has omitted all medicine. Should any return of this complaint occur, it is my intention to try the effect of sulphat of zinc, recommended by my friend Dr Bardsley; and if this is not finally effectual, the nitrat of silver; neither of which, however, I trust, will be necessary.

The hereditary temperament of this patient is full of nervous irritability, which may in some measure account for some of the symptoms bordering upon hysteria; but they were so much more closely allied to chorea, that I have no hesitation in placing it in that genus. Be this as it may, it proves the justness of the indications adopted, and the efficacy of the remedies employed, even though it be considered as one of those anomalous instances, very difficult to satisfy nosologists whose imagination prompts them to make a distinction, where a difference is very difficultly defined. *

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* *P. S.*—January 29th, 1825. In the first week of November last, she began to

In addition to the preceding imperfect outline of chorea, and case just related, I beg leave to detail another singular case of anomalous chorea, although some difference of opinion has existed as to the most accurate designation of it. All, however, agree in referring it to a variety of the order of *Spasmi;* as the patient could be still in bed, it differs from *Convulsion;* and, as when awake, he could voluntarily exert every muscle of his body, it could scarcely be considered as paralytic, it consequently resembles *Chorea.* Being nearly related to the patient, his disease was the subject of my observation from beginning to end; and as it resisted the very best efforts of our art, it may not be uninteresting to compare the views and practice of those physicians he consulted, all of whom were of high professional rank and talents, and treated it as chorea had been up to that time, with the exception of the excellent Sydenham, and indefatigable Hamilton.

October 1794.—Mr J. . . . s, aged 54, an attorney. Being a bachelor, he did not find it necessary to pursue his business so as to injure his health by study or confinement; but, on the contrary, his constitution was naturally strong and hardy, and he had enjoyed uninterrupted good health for more than forty years, except what is usual from small-pox, measles, and an intermittent fever, all of which required nothing more than the ordinary remedies. From infancy he was subject to a slight nervous affection, which manifested itself more particularly if suddenly awoke out of sleep, by a *tremor;* Surprise, agitation, or any violent unusual motion, would also excite it; but it soon subsided into calmness, by quietly allowing a short time to elapse. His mind was vigorous, his temperament choleric, and his flow of spirits generally equal, unless subsequent to a debauch of intoxication, which he sometimes indulged in for several days, and even nights in succession, during which his potations were not confined to any particular liquor, though about this time his favourite was old ale.

June 1795.—Having lately indulged, more than formerly, in spirituous liquors, in form of punch, his hands became so unsteady as scarcely to allow him to write without difficulty; al-

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take, at my request, one drachm of the subcarbonate of iron, and one to two drachms of the ammoniated tincture of valerian, twice or thrice daily, which she has continued, with occasional intermissions until this time, and, as she thinks, with great good effect. I should observe, however, that the efficacy of my prescription may have been aided by about two months residence in the country, where she has enjoyed pure air, agreeable exercise, and cheerful society. Both combined, however, seem to have completely reestablished her health, as the habit of her complaint not only seems to be broken in upon, but her person is so much improved, that I have very little doubt of the cure being permanent.

though, for the preceding nine months, his disease had very perceptibly increased to a troublesome degree, but without any kind of pain, except that of weariness, occasioned by constant agitation. Warm weather exasperated the disease. But if his mind or body were kept constantly employed, or his attention suddenly attracted, the spasms ceased, so as scarcely to be perceptible to himself or others. His medical attendant urged the necessity of abstinence from drinking, and the daily use of the cold bath, which he persevered in regularly for a period of two months, without perceiving any material alteration, although it certainly quieted the spasms for about half an hour after each immersion.

At this period he consulted Dr Evans of Shrewsbury, who prescribed some tonic pills, composed of zinc, iron, camphor, and assafœtida, which, after one week's trial, were altered into a more simple formula, consisting of sulphat of iron, aloes, and assafœtida, which he took for some time without any apparent benefit.

In July 1795, he was induced to visit Liverpool, to try the effect of sea-air and bathing, during which time he availed himself of the advice of the late Dr Brandreth for more than a month, who prescribed for him pills of the oxyd of zinc and myrrh, and had two setons inserted into the nape of his neck, which were steadily persevered in for some time after his return, with the further aid of a simple cold bath, but without the smallest benefit. He then consulted Dr Darwin of Shrewsbury, who urged the propriety of continuing the cold bath, and directed small doses of the ammoniaret of copper, rhubarb, and tincture of opium, with the volatile alkali, to be taken every night, but with no better success.

The efforts of provincial physicians having failed, he was anxious his case should be submitted to a London physician; and Dr Myers being fixed upon, the above particulars were communicated to him in writing; who suspected it might arise from atonic gout. He recommended temperance, exercise, tonics and antispasmodics.

Dr Myers's prescription, regimen and opinions, were rigidly adhered to, as circumstances admitted of, for at least two, if not three months, but with no better success, or even signs of amendment, than his predecessors; in addition to which, his habits of living have been tranquil and regular; and he has several times been electrified. He therefore abandoned all medical treatment, and returned to his common regimen, still refraining from any intemperaance in taking ale, wine, or spirits. Notwithstanding which, his complaints evidently increased, and he was reduced from a state of corpulency to that of a thin and spare person, having lost *forty pounds* in weight, which evidently was owing to the constant exercise from involuntary motion, by the spasmodic action of the muscles, of apparently the whole body; for otherwise he is in good health and spirits, which enables him to submit to his sufferings with patience, though he never ceases to be agitated, unless when asleep, which he seldom fails to enjoy for full four or five hours each night; though, in the day, he finds the spasm somewhat more bearable, by rolling on the bed, where he passes most of his time. But even in this position, his head is drawn violently backward, the jerk of which forces his hands and arms forwards: the muscles of the face too, are greatly affected, so as to give his countenance the expression of something similar to what we understand by the "*risus sardonicus.*" Whether walking or standing, his legs partake of the agitation, by either forcing his feet forward, or by causing a halting in his gait; and if near a table, he always threw himself upon it, rolling his agitated head upon his equally unsteady hands, in which he sometimes held a penknife, pointing it to his face, as the dread of wounding himself would sometimes quiet him for a few minutes. In fact, his appearance altogether often excited a feeling of horror to the timid, and pity in the stranger, who, when passing, have been known to ask, whether he was not an idiot? but who would soon find, if they addressed him, to possess more than an ordinary share of both mental vigour and constitutional strength. Although despairing of relief, and thinking he must sooner or later sink under the violence of his disease, his case, minutely drawn up, at the request of the patient, was submitted by me, in the winter of 1795 and 1796, whilst pursuing my professional studies in Edinburgh, and a pupil in the class of the late distinguished Professor of the Practice of Medicine in that University, to Dr Gregory, for his consideration and opinion, which he gave, after zealous and studious deliberation. He approved generally of Dr Myers's treatment, and recommended the use of opium and hemlock as antispasmodics; aloes and gamboge as aperients, and frictions with anodyne liniment; and if necessary, to try the Bath waters, electricity, and mercury.

Dr Gregory's prescriptions, directions, and suggestions, were rigidly complied with, and, as a *dernier* resort, a mercurial course entered upon, substituting the ointment for the blue pill, under the impression of its being a more effectual mode of changing the system; and it not only had *no* effect upon the spasms, but failed to excite the salivary secretion so completely, that although eight or nine ounces were rubbed in, not even the slightest affection of the gums was perceived. He therefore, from this period, gave up all hope of relief, and dragged on a miserable existence for full *twenty-five* years, and died in the 81st year of his age, of a slight febrile attack, shaking as badly as ever until the last hour, if not the last minute of his life; the latter period of which, I believe, may, with truth be said to have been spent in unceasing motion, more or less, from the violence of the spasms, except whilst he was asleep; although at the age of 70, he was confined to his bed for about one year, by having fallen and fractured the neck of the os femoris.

To those who have had patience to read this paper, rendered perhaps tedious not only by its prolixity, but unsatisfactory in its termination, I have only to say, that I have myself often been taught a better lesson by proving what medical skill cannot do, than by learning what it can, which I hope I may be allowed to assert, without being accused of wishing to lessen the high gratification every practitioner must feel at finding his efforts rewarded by the recovery of his patients.

Liverpool, 18*th December*, 1824.

VIII.

Case of Medullary Sarcoma, with Appearances on Dissection. By J. Dickson, Licentiate of the Royal College of Surgeons, Edinburgh.

On the 17th June, 1823, I was requested to visit A. H. Esq., ætat. 23, fair complexion and scrophulous constitution, a muscular well formed, and (until then) a healthy young man. I found the right testicle very much enlarged. It felt smooth, but very hard, shape natural, little pain, no increased heat, no discoloration of the integuments. Complains of occasional pain in the back; in other respects enjoys perfect health. Says, that in October last, when following the harriers, he received a bruise on the right testicle from the pommel of the saddle. It was rather a severe blow, and gave him great pain for a few minutes, but did not prevent him from pursuing his day's sport. Ever since he has led a very active, rather irregular life, occasionally indulging to excess in spirituous potations, but has never felt any pain in the testicle; although it has, ever since the accident, been gradually increasing in size. I applied 24 leeches to the enlarged testis, ordered linen cloths soaked in an astringent lotion to be kept constantly applied, to use a suspensory bandage, and recommended the recumbent posture as much as possible. I gave him a mercurial alterative every night, with a saline laxative twice a day.

July 1st.—Applied 22 leeches, to use the medicine *ut antea.*

July 6th.—Applied 24 leeches.

—— 10th.—Applied 19 leeches, and ordered the testis to be well rubbed twice a day with camphorated mercurial liniment.

July 15th.—Mr H. had taken the liberty of walking out, and the day being cold and damp for the season, he thought he had caught cold. I found him with a fixed pain in the umbilical region, increased on pressure; pulse 103, sharp, hard, and vibrating; skin hot and dry; thirst considerable. I bled him *ad deliquium*, and directed him to take two table-spoonfuls of a saline purgative mixture every two hours until the bowels are freely opened.

July 16th.—Pain nearly gone; pulse 96, soft and full; cathartic has operated freely; blood buffy; testis free from pain.

July 17th.—To apply 24 leeches *ad testem*, and to continue the mercurial alterative and saline medicine *ut antea.*

July 18th.—Pain in the bowels has returned; 14 ounces of blood were detracted, and 24 leeches applied over the belly; bleeding to be encouraged by hot fomentations. When the blood ceases to flow, to cover the whole abdomen with a blister; to take an anodyne bolus, composed of opium and calomel āā gr. iss.

July 19th.—Blister has risen well; pain nearly gone; bowels open; no thirst; skin moist.

July 21st.—Testis rather painful; 24 leeches were applied, to promote the bleeding by a large poultice.

July 23d.—Signs of abdominal inflammation again made their appearance; 15 ounces of blood were taken from the arm, with perfect relief.

Mr H. was now seen by a physician from Newcastle; as there remained no traces of abdominal pain or irritation, he (the physician) recommended, as long as there was any pain or uneasiness in the testicle, to apply leeches freely, to keep an astringent lotion constantly upon the testicle, to avoid exertion, to live sparingly, &c. and to take lb.i. of *decoct. sarsaparill.* daily.

August 3d.—Complains of a constant pain in the bowels, increased on pressure; pulse 109; tongue dry; urine scanty, and high coloured; bowels constipated. He was bled until he felt approaching syncope; applied a large blister to the abdomen, took a dose of *ol. ricini*, and three hours afterwards administered a cathartic enema, which procured a copious evacuation of healthy-coloured feces.

August 4th.—Passed a pretty easy night; feels free from pain; pulse 90, soft; blood cupped; blister has risen well.

He was now seen by an eminent physician from Darlington, who ordered nauseating doses of tartarized antimony every four hours, and to rub ʒi. of *ungt. hyd. fort.* on the inside of the thighs, every night and morning. At the same time he recommended, that a surgeon from Newcastle should see Mr H., who came on the 5th August. Our patient at this time felt considerable heat, with sharp lancinating pains shooting through the testicle and along the sparmatic cord, with a little pain occasionally in the loins and down the thigh. The testicle is very hard, and has an uneven knotty feel; the patient is rather anxious for an operation, should it be thought advisable.

Mr J. fancied that he felt an indistinct fluctuation in the testicle, and punctured it; half an ounce of clear watery fluid escaped. He advised us to persevere with the leeches, and the antiphlogistic regimen, &c. and to use the warm bath every night. The testicle increased a little in size after it was punctured, and felt rather more painful; pain in the abdomen more constant; appetite impaired; pulse 110, small and sharp; occasional heats with partial perspiration on the forehead, breast, &c. As the patient was anxious for an operation, as we had then no prospect of the testicle being reduced to its natural size, and having begun to suspect the nature of the disease, we told our patient that the removal of the testicle afforded him the only hope of recovery, which he eagerly assented to.

August 14th.—The testicle was removed by operation. The spermatic cord was divided as high as possible, and appeared perfectly sound. On making a section of the testicle after its removal, it exhibited a whitish gray colour, had a greasy feel, and was tolerably firm and glandular in consistence.

The ligatures (three in number) came away on the 7th and 8th days; the wound healed rapidly. For the first twenty days after the operation, the pulse came down to 78, soft, full, and regular; tongue clean and moist, appetite and strength much improved.

September 2d.—My patient was attacked with a slight rigor, pulse 110, tense and vibrating; complains of a dull, heavy, sometimes acute pain, directly beneath the umbilicus, somewhat tender on pressure. If he attempts to sit up a few minutes, has great pain in the back; bowels costive, cicatrix on the cord a good deal swelled and tender; the cord itself can be felt to the extent of four inches, considerably enlarged and hard, but smooth.

At this period there was an interval of convalescence. He recovered so far as to be able to ride out in his gig, but always complained of much pain when in the erect posture. The warm bath, friction with *linim. terebinth.* and an opiate every twelve hours, gave him most relief. Medicines of various kinds were administered, but without any visible effect. From this time until the 6th of November I took no notes. He was never free from that dull, heavy pain in the bowels and back. He sometimes suffered very acutely. His appetite became gradually worse, much inclined to costiveness, frequent nausea, with occasional vomiting of a green coloured fluid; features much shrunk; a kind of dirty sallow complexion.

November 6th.—We discovered a tumour directly under the umbilicus, rather inclined to the right side. It was of a globular shape, as large as two fists, very hard, and somewhat irregular on its surface, a little tender, but more so at one time than another.

From this time he got gradually worse; no appetite, constant nausea with frequent vomiting of large quantities of green vitiated bile; had no motions but what were procured by glysters; tumour slowly but gradually increased; the right cord much swelled, and seems evidently connected with the abdominal tumour; cicatrix tender, but entire.

November 12th and 13th.—He suffered very much in the back and tumour; when I felt it on the 15th, it appeared as large as a child's head, still very hard. After this it seemed stationary, and did not give him much trouble. The stomach was so irritable, that every thing he took was rejected, mixed with large quantities of green fluid. He retained the perfect use of his faculties to the last, and expired without a struggle on the 25th of January 1824.

Post-mortem Appearances.—With the assistance of my friend Mr Bexus, I opened the body. The division of the abdominal integuments exposed to view an immense globular tumour, occupying the whole lumbar region; its diameter was nearly seven inches; the small intestines were averted to the left side. The tumour was strongly attached to the whole of the lumbar *vertebræ*; it adhered so firmly by a kind of fibro-cartilaginous substance, that it was with some difficulty I removed it. A strong membranous cyst of a bloody colour surrounded the tumour. On being cut into, the contents were composed of a gray medullary mass, nearly of the consistence of brain, intimately blended with a whitish, sometimes dark brown, fluid, not thicker than cream. The right spermatic cord was firmly attached to the tumour, and indeed seemed lost in it; but when opened, contained no fluid. The omentum, except some bloody streaks where it covered the tumour, was sound. The jejunum presented a very vascular mottled appearance. The liver appeared large, and the gall-bladder very large and distended; in other respects it was quite healthy. All the other viscera of the abdomen were perfectly sound.

The lungs on the pectoral side were of a very light colour. On the dorsal side we observed some incipient tubercles. Heart sound. We did not examine the head.

The left testicle was very small. On having been questioned respecting it, Mr H. said, that when seven years of age, he had the measles, and ever since then this testicle had ceased to enlarge. This circumstance would lead us to believe, that a latent disposition must have prevailed in the system, which was accidentally roused into activity by the injury sustained by the other testis from the pommel of the saddle. Had the disease been sooner detected, and had the testicle been removed at a much earlier period, could the life of this valuable young man have been prolonged? Must this formidable disease for ever remain *opprobrium medicorum?* Whether attacked early or late by excision, or other rigorous measures, are all means alike abortive? When we or valuable friends are so attacked, must we sit down with the deplorable certainty that life is the forfeit? It certainly is a *desideratum*, that the incipient harbingers of such a disease were clearly and accurately pourtrayed. This is an era of activity and enterprise, as well among professional as other classes of men. Let us cherish the hope that future investigation may bring to light remedial agents, which will enable us to combat this and other diseases of equal malignancy, with more prospect of success.

Romaldkirk, Yorkshire, Feb. 17, 1824.

IX.

Report of the Case of a Malignant Tumour successfully removed, by Operation, from the Left Antrum Maxillare vel Highmorianum. Communicated to the Editor by JAMES F. NIVI-

SON, Licentiate of the Royal College of Surgeons, Edinburgh, and Hospital Assistant-Surgeon to the Forces.

THE following case came under my observation in November 1822, on my being called from private practice (in Dumfriesshire) to join the army. As the subject is uncommon and important, and the practice adopted bold, I could not forbear drawing up, for the Edinburgh Medical and Surgical Journal, an imperfect sketch of the disease and operation.

Like many morbid and inveterate changes of structure requiring the use of the knife for their cure or palliation, the disease under consideration had a very simple origin. The patient (anno 1820, a married woman, ætatis between 40 and 50) had a carious tooth opposite the seat of the maxillary antrum, which she wished to be extracted. The operator, in attempting this, broke the tooth, and the fang or radix was left in the jaw-bone. Afterwards the fang was removed; but this was not effected without difficulty, and the employment of mechanical force. Soon after, a small tumour made its appearance where the tooth had been extracted, and projected out of the alveolar process. This tumour increased gradually, and the woman becoming concerned about the event of the case, consulted several surgical practitioners. Various remedies were applied, scarifications and other plans tried, but they did not in the least retard the growth of the tumour. In fact it (as it were) defied these measures, and sprung forwards with augmented virulence. By the end of eighteen months from the original appearance of the tumour, its extension into the mouth, and towards the fauces, became so alarming, that the poor woman was threatened with suffocation; her nights were passed without sleep, and her life was become a burden to her, from the daily torture to which she was subjected. Very active measures were now demanded to obviate suffocation. Accordingly, a portion of the tumour was surrounded by ligature, and extracted, after the surgeon had experienced much difficulty in its application. This operation was palliative, and relieved the woman for some time; but the tumour rapidly gained its old ground, and the ligature was used again and again, in order to prolong the miserable life of the patient. After each application of the ligature, pieces as large as a hen's egg dropped of, or were removed by the forceps. By the middle of October 1822, the tumour extended its direful march in every direction. It not only nearly filled the mouth, but projected forwards on the cheek, threatening extensive destruction to the osseous structure in its neighbourhood. The cheek was pushed out like a filled bladder or bag, and was tense, glistening, inflamed, and acutely painful to the touch. The respiration of the patient was now audible and laborious, and the countenance suffused, from the impeded entrance of the air into the bronchæ. The patient's general health was suffering much, and her fate appeared sealed, and fast approaching. The bold and scientific surgeon was now required to act a part in the scene. He had learned from anatomy and pathology, that the root of the evil was within the antrum maxillare, and that nothing but bold and judicious practice would give his patient the chance of escaping an inevitable death. The season for palliative treatment was now past, and the woman was sinking. The patient was placed under a dexterous surgeon; and he, with the assistance of two naval surgeons, and a few steady young men, pupils, undertook the radical operation.

The patient was placed in an armed chair opposite a window; and the head being properly supported with pillows, the cheek, by one stroke of a scalpel, was divided from the centre of the *os malæ* to the angle of the mouth. To render this part of the operation more complete and determinate, it was effected upon a sheet of lead (properly bent and curved), introduced between the parietes of the cheek and the surface of the tumour. From the size and projection of the tumour, glabellad, this plan for the division of the integuments was adopted, in preference to the use of the sharp-pointed bistoury, which (without this use of the lead) was unquestionably the only appropriate cutting instrument that could have been employed.

The operator having thus a solid and unyielding basis to rest upon, the tumour was completely, and with rapidity, exposed by one sweep of the knife. It was found of large dimensions, occupying one half of the face, and extending basilad (as stated above) into the cavity of the mouth, exhibiting there the appearance of a mushroom or cauliflower, and, by the action of the tongue and muscles, it was to a certain extent moulded to the palate.

Bearing Mr Liston's operation in view (*Vide* No. 68, Edinburgh Medical and Surgical Journal), trephines of various sizes were on the table, in order to cut a free entrance into the antrum; but this part of the operation was found completed, as the external part, body, and palatine plate of the *os maxillare*, were annihilated or absorbed by the destructive pressure of the tumour. This being the case, the morbid growth, in all its bearings, was clearly distinguished. The operator now grasped the tumour, and, by much manual force and twisting (in which the assistant surgeons took a part), it was wrenched from its connexions. Several cauterizing irons were now in readiness; but as there was, contrary to expectation, little hemorrhage, they of course were not used. In this latter stage of the operation, the knife was inapplicable, from the many irregular sinuosities into which the tumour had insinuated, and likewise, from the tough adhesive structure of the tumour, there was less probability (by the method adopted) of any of it being left behind. If I recollect right, two or three buccal arterial branches only required ligature. On examination of the site of the tumour, a fearful chasm was exposed to the eye, in which the fist might have been buried. In fact, the whole of the superior maxillary bone, excepting the nasal, orbitary, and a portion of the malar processes, was completely removed by absorption. The wound in the face was united by the interrupted suture, adhesive straps, compress, and roller, an anodyne administered, and the patient put to bed. By the assistance of wine, the operation was well endured. The root of the tumour exactly resembled the condyle of the femur. Anterior to this, there was a regular neck or cervix; it then expanded out into irregular tuberosities. Several plates of bone adhered to the radix, which evinced how strongly it was attached to the osseous structure iniad of the *os maxillare.* On handling the tumour, it was found heavy, and of a dense firm texture, not unlike a scirrhus liver. It was studded throughout its substance by many minute spiculæ of bone, which communicated a gritty sensation to the fingers: in fact, the term Hepatization might convey a tolerable idea of the physical consistence of the tumour. My friend, Mr R. Johnston, surgeon R. N., (who was on leave of absence at the time, and living on the spot), had the superintendence of the after-treatment. By last packet, I have learned the woman had a complete recovery, and was enjoying her former good health. How has Nature acted in regard to the extensive vacancy left by the loss of the *os maxillare?* Has she supplied the loss of substance by any attempt at regeneration of ossific matter? Or has she called in the agency of the granulating process to effect this? These questions I cannot yet answer, as, after the operation, I was soon ordered on foreign service. Much praise is justly due R. Liston, Esq., surgeon in Edinburgh, for leading the profession into such a bold field of efficient practice, in cases of the above nature.

Barbadoes, 6th December, 1823.

X.

On the Symptoms and Cure of Croup. By WILLIAM MACKENZIE, Andersonian Professor of Anatomy and Surgery, and one of the Surgeons to the Glasgow Eye Infirmary.

THE extreme aptness in mucous membranes, when inflamed, to secrete pus, and in serous membranes to secrete fibrin or coagulable lymph, is generally regarded among the most striking characters of these two structures. It is comparatively so rare an occurrence for a serous membrane to secrete puriform fluid, or for a mucous membrane to become coated by a fibrinous exudation, that we are liable to overlook the fact, till we recal to mind the appearances displayed on dissection, in cases of croup on the one hand, and of puerperal peritonitis on the other. Most cases of peritonitis, and also of pleuritis, and indeed of the inflammations of serous membranes generally, are attended, if allowed to run their course, by an exudation of fibrin; but occasionally in pleuritis, and commonly in severe cases of puerperal peritonitis, pus, more or less diluted, flows from the inflamed surfaces. Slight inflammation, such as what occurs in a common cold, pours from the membrane of the windpipe, throat, and nostrils, a copious secretion of puriform mucus; but in that peculiar disease called croup, the same membrane secretes a crust of fibrin; and as far as I know, this is the only instance in the human subject, of a mucous membrane being affected with what may be called a fibrinous inflammation. In experiments upon the inferior animals, something similar is said to take place in other parts of the mucous system; the conjunctiva, for example, appears to secrete fibrin, when inflamed by exposure to the vapour of muriatic acid, and the rectum, when inflamed by irritating injections.

The general symptoms of croup, the extreme danger of the disease, the frequent inefficacy even of the most active and best directed treatment, and the striking appearances on dissection, are familiar to every medical practitioner. There is one fact, however, in the history of this disease, which has not as yet been noticed by authors on the subject; and one means of treatment, which has been repeatedly successful in my own hands, as well as in the hands of those from whom I first received my information of its utility, which I have reason to believe has not come into general use.

The fact to which I refer is, that the exudation of fibrin very frequently commences on the surface of the tonsils, thence spreads along the arches of the palate, coats the posterior surface of the *velum palati*, sometimes surrounds and incloses the uvula; and at last descending, covers the internal surface of the pharynx and œsophagus, the larynx and trachea. That this is the frequent progress of the fibrinous exudation, I am convinced, from the careful and repeated observation of the phenomena during life, and upon dissection.

What is of much more importance, however, than the observation of a pathological fact, is the ascertained efficacy of a means of cure for this disease. Not merely have I repeatedly found the application of a solution of nitrate of silver completely successful in removing the fibrinous crust, covering the tonsils, velum and uvula, but I have been led to attribute the rapid alleviation and ultimate removal of all the other symptoms to this remedy, even in cases in which, from the severity and peculiar signs of the complaint, I had no doubt that fibrin had already exuded from the lining membrane of the larynx and trachea.

The solution which I employ is a scruple of nitrate of silver in an ounce of distilled water. By means of a large camel hair pencil, this solution is to be freely applied, once or twice a day, according to the severity of the symptoms, to the whole lining membranes of the fauces. The surface of the tonsils, or whereever else the fibrinous crust is actually in view, will of course be particularly attended to; but I do not hesitate to push the pencil to the lower part of the pharynx. This remedy, so far from being productive of any irritation, beyond the mere mechanical and temporary one attending its employment, uniformly alleviates the symptoms of croup, such as the difficult respiration, the barking cough, and the peculiar anxiety of the little patient. It has evidently such an affect upon the diseased surfaces, both those which it actually touches, and those which are continuous, as to induce them to throw off the false membrane by which they are covered, and it appears also to prevent the farther progress of the exudation.

46, *Wilson Street, Glasgow.*

XI.

On Tic Douloureux. By Dr Borthwick, F. R. S. E., Fellow of the Royal College of Physicians of Edinburgh.

Having had several opportunities of treating neuralgic affections since the case which I communicated, in a late

Number of the Edinburgh Journal, I am disposed to offer a few short notices of cases, which I consider not altogether unworthy of attention.

While in attendance upon a labouring man, Thomas M'Gill, a patient of the Royal Dispensary, his wife requested of me to give her something for bad headachs, to which she was subject, and which, as she stated, rendered her existence miserable. She was at the moment in pain, and seemed in a very pitiable state. Her headach was periodical, and she could tell within five minutes the time of its approach. She had used a variety of remedies, and was much debilitated by successive blisters, laxatives, and blood-letting. On examining into her case, it evidently apppeared to be a neuralgic affection, her greatest agony being seated above the eyebrows, in and about each supra-orbital foramen.

As she had undergone every other plan of treatment, I prescribed the carbonate of iron, in small doses, for a day or two, and desired her to call on me in three or four days, which she did, and assured me that the headachs were already greatly lessened. I then ordered her to take a drachm of the iron three times daily, for a week; and at the expiration of this time, she came to me with a countenance beaming with joy, and declared, that her pain had totally ceased for two days past. I desired her to persevere in the use of the medicine for ten days or a fortnight, which she faithfully did, and has not had a return of headach for ten months.

I was consulted by a woman, æt. 67, who had come to town on a visit to her son, a shopkeeper in Edinburgh. She could scarcely move in consequence of a violent attack of lumbago, to which, for years, she had been a martyr. In a few days the pain across her loins was relieved, but it settled with great severity in the left hip, constituting sciatica. Having in vain tried the routine of baths, blisters, cupping, and diaphoretic medicines, it occurred to me that the nerves in this part might partake of tic douloureux, as well as those in the face; and I resolved upon giving a trial to the carbonate of iron, which produced a very great amendment, so much so, that after a month's use of it, in drachm doses three times daily, she generally laid aside her stick and crutch, and has continued well for a longer period (seven months) than she has experienced for several years.

James Law, sail-cloth weaver, æt. 40, complained of most violent headachs, which attacked him periodically, and which incapacitated him from his business. The paroxysms were dreadfully severe, and of two days duration. He had, as may be supposed, tried many remedies, but hitherto without effect. This case seemed a fair one for giving a trial of the iron, and he was ordered scruple doses three or four times daily, and subsequently drachm doses, several of which he took with him to the country; and, on his return after some weeks, he called to inform me, that his headachs had gradually lessened in severity, that the intervals free from pain were much longer, and that he had been for some time quite well. The change in this man's general aspect was most striking.

I still feel disinclined to enter into any speculative reasoning on the pathology of neuralgic affections, or the *modus operandi* of medicine in relieving them. I have, as yet, only to do with facts; but I have no doubt, that the united exertions of practitioners in treating this class of diseases, will throw light on so very interesting a subject, and enable us to understand upon what principle such very speedy effects are produced in the animal economy. For it is now almost a settled point in practice, that iron will relieve, if not cure, tic douloureux (neuralgic affections generally speaking), as certainly and as speedily as quicksilver, in particular forms, will relieve and cure the *lues venerea.* The extent to which the *rubigo ferri* may be carried varies in several instances, and of course depends upon peculiar states of the stomach, and I have given it in a dose of a drachm and a half four times daily in severe cases; and at this moment a very tedious and aggravated case is getting well under this amount. I shall probably have permission to publish this case, which is the worst I have witnessed. I must again offer my tribute of acknowledgment to Mr Hutchinson for having encouraged the profession to the extended use of the remedy in question.

83, *George Street, Nov.* 1824.

XII.

Case of Death from Inflammation of the Gall-Bladder, occasioned by the Irritation of a Stone. By David Scott, M.D., Cupar-Fife.

OCT. 23, 1824. John Sinclair, ætat. 43, of fair complexion, corpulent, married, by trade a tinsmith, was seized, on Saturday evening, with severe pain of the belly, accompanied with fever, great restlessness, and thirst. His wife, conceiving that it was an attack of colic, to which, she says, he was sometimes liable, applied heat to the abdomen, and gave him a glass of gin in hot water. His complaints, however, notwithstanding these remedies, increased, and, towards morning, became intolerable, so that at one o'clock I was sent for hastily. I found him, as described above, labouring under severe pain of the belly generally; but, on minute examination, it was particularly referable to a fixed part in the right hypochondriac region, immediately under that point where the cartilages of the false ribs turn up to be inserted into the sternum. Pulse 95, full and hard; breathing not impeded; skin very hot; vomiting, moaning, and very restless. Stated, that three nights ago he had an attack somewhat similar, but not so severe, which gradually abated without medical aid, so that he was enabled to resume his work; on which occasion, however, he took a dose of salts, from the operation of which he thought himself better. His appetite at present good, but has had no alvine discharge since the operation of the physic, that is, for two days.

Considering it a case of colonitis, or at least of inflammation of some part of the peritoneal lining of the bowels, or cavity of the abdomen, with symptomatic fever, his arm was tied up, and he was bled from a large orifice. On five tea-cupfuls of the ordinary size being taken, there was no diminution of pain, or tendency to syncope. The first two cupfuls already presenting the buffy appearance, the bleeding was continued to the extent of other three, when approaching syncope manifested itself, with feebleness of pulse. The diffused pain of abdomen was subdued by the blood-letting; but not that which was fixed in the right hypochondriac region, which continued nearly as before, with rather increased restlessness. Conceiving that the pain and obstruction of the bowels, though chiefly owing to inflammation, might be partly owing to spasm, he was ordered an ounce and a half of castor oil, as much of cinnamon water, with fifty drops of laudanum; preceded, however, by two large domestic enemata; and these, though administered with a large syringe, and directed upwards with considerable force, as on this occasion I operated myself,—an office which by some may be thought beneath the dignity of a physician; but he who has a proper sense of his duty, and the responsibility attached to a medical man, will not scruple much about the means, provided they present the prospect of success,—however failed in bringing away any feculent matter. The oil mixed with the opiate was then given, and he was left until morning.

Sunday 24th, 9 o'clock morning.—Had some sleep; but the fixed pain under the cartilages of the ribs is still present, and he thinks it little or nothing diminished; pulse 100, pretty full and hard. No operation from the physic; bled again to four tea-cupfuls, which produced syncope, with great feebleness of pulse; the fixed pain in the part before-mentioned not yet removed. Ordered 6 grains of calomel, 6 of aromatic powder, with a scruple of jalap, and every hour two drachms of Epsom salts in a tea-cupful of infusion of sennæ, until the bowels be moved.

12 o'clock noon.—No operation from the bowels; pain still present and fixed; sickness, with diminution of strength; pulse very feeble. Ordered to be put up to the neck in hot water in a proper bathing-machine; from which, after being in the bath for twenty minutes, syncope was produced. Felt relieved from the bath. Ordered an ounce and a half of castor oil, as much of cinnamon water, with four drops of the oil of croton.

8 o'clock evening.—As yet no relief from the bowels; pain in the right hypochondrium still continues; pulse 90, very feeble; vomiting; diminution of muscular strength. Ordered to be placed again in the warm bath, which produced syncope, with considerable relief of pain. Ordered also to take immediately an ounce of castor oil, an ounce of oil of turpentine, with as much cinnamon water, and a blister to the part affected.

Monday 25th, 9 o'clock morning.—The physic last given had operated powerfully through the night, producing seven or eight motions of a black and watery nature, with fetid smell. Blister rose imperfectly; feels easier, but still the fixed pain is not removed; pulse very feeble, with tendency to vomiting. At this time had the assistance of an intelligent practitioner and friend, when we agreed, from the prostration of strength, that further general blood-letting would be unsafe, but that something might be attempted locally; ten leeches were therefore ordered to the part affected, to be followed up with fomentations.

6 o'clock evening.—Has vomited a good deal of a blackish matter, similar to ink diffused through thin mucilage; two or three dejections of the same appearance have passed *per anum;* pulse very feeble, scarcely to be felt; surface cold; pain indistinct. Ordered bottles of hot water to the extremities, and also to the sides, and to have a pill of one grain of pure opium, with two of camphor, every hour, until the vomiting ceases.

12 at night.—Surface still cold; pulse not perceptible; is very restless, yet perfectly sensible. Ordered hot negus, with a drachm of laudanum, and to have a large tin cannister of hot water applied to the extremities.

Tuesday 26th, 9 o'clock morning.—Had some sleep; the pulse, with the warmth of surface, has revived; feels easier, and complains of no pain; no vomiting; drowsy. Sanguine hopes are entertained of his recovery. Ordered no medicine, but to be left to rest.

12 o'clock noon.—Vomiting of blackish matter has returned. Ordered the pills of opium and camphor.

2 o'clock.—Died.

Dissection.—This case having run its career quickly and uninterruptedly, and indeed staggered our faith in the adequacy of medicine for the reduction of such rooted diseases, though attacked in the beginning, and with the best directed efforts, we were anxious to obtain leave for the inspection of the body, and were happy to find that our views on this head were anticipated by those of the friends; they conceiving, and not unjustly, that something uncommon must have been the occasion of this man's death—apparently, in their opinion, cut off in the midst of health. Wherefore, at 8 o'clock in the evening, five hours after death, and whilst the body was yet quite warm, we proceeded to examine it. On cutting through the parietes of the abdomen, there was about an inch and a half of fat between the skin and subjacent muscles; and on lifting up the flaps, and exposing all fairly to view, the general aspect of the bowels appeared to be very healthy. The omentum, mesentery, and mesocolon, were very much loaded with fat. The small intestines and colon being run over in the usual way, no trace of inflammation or of stricture could be seen; and, what was remarkable to us, (for *a priori* we particulary expected inflammation with obstruction), no feces whatever could be found, in any part of the bowels, with the exception of the fluids taken before death, mixed with a blackish matter, the origin of which will be afterwards detailed. The liver and stomach, as far as could be observed at the time, appeared also to be healthy. Conceiving, therefore, that the cause of death must be more minutely situated than we expected, we determined on inflating the small intestines, by inserting a blowpipe into the ileum, within a few inches of its termination into the *caput cæcum*, in order that, by this method, we might bring the intestines, with any trace of inflammation, more completely under view; which being done, we could make out nothing that was diseased in them, on the most careful examination. These being tied at their extremities, were afterwards cut out, to give us more room for the inspection of the remainder. The blowpipe being reversed, the colon and rectum were inflated in the same manner; but in all of these we could see nothing wrong. These were also cut out; and, in doing so, we found some adhesions between the mesocolon, and apparently the lower and concave edge of the liver and gall-bladder. We then naturally concluded that the disease must be hereabouts, as it was under the point of pain. Having removed the bowel, by directing our attention upwards upon the concave surface of the liver, the first thing that arrested our notice was the prominency and size of the gall-bladder. It felt large, fleshy, and evidently contained a stone in its larger or distant end. The adhesions with the mesocolon and colon we now perceived had proceeded entirely from the surface of the gall-bladder, the adjacent parts of the liver being sound. Before removing the gall-bladder, the vessels situated in the capsule of Glisson were accurately dissected, in order to discover whether any stone might have been on its passage from the gall-bladder to the duodenum; and might have occasioned the pain referred to this place. These, however, were quite natural; no stone was found, nor any enlargement of the ductus choledochus communis. The gall-bladder was then removed and examined. On cutting through its coats longitudinally, they were so altered in appearance and thickened, as to measure half an inch across, as ascertained by a foot-rule. Its cavity was occupied by a stone in its larger end, with a few ounces of a thin blackish fluid, similar to very black roasted coffee grounds in liquid, or rather to ink, as stated before, diffused through thin mucilage. The stone was about the size and shape of a green olive, and not dissimilar in hue, light for its bulk, and externally presented a white shining crystallized appearance; and, when held near the candle, was quite sparkling and resplendent. Its whole outer edge was rough, and the angles of the crystals very sharp, so that from these irritating the internal membrane of the gall-bladder, must have arisen the inflammation and pain, and the consequent death of the individual. The liver appeared very healthy, both externally and when cut into. The thorax was opened and its viscera were found sound—the lungs especially so.

The pericardium and cavities of the heart, were also examined; and the only thing worth recording, and which I think deserves more attention than is generally bestowed on it, was the fibrous coagulum, or polypus, as it is called, of several inches in length, and about an inch in breadth, that was found in the right auricle and ventricle.

Practical Remarks.—The thing most demanding our attention in this case, is the state of the bile. The blackish kind of fluid, as described above, which was thrown up by vomiting, and what passed *per anum*, appeared to possess the same appearance and qualities with that contained in the gall bladder.

It is allowable therefore to infer, that they were derived from the same source, viz. the liver.

The next thing worthy of notice, is the altered appearance and quality of the bile, even of that which was contained in the gall-bladder. It wanted, for example, its usual colour, smell, tenacity, and soapy feel; in short, being a thin inky fluid diffused through mucilage, which last may have its source from the internal membrane of the gall-bladder and ducts.

As the liver was healthy in other respects, this altered condition of the bile must have been owing to the inflammation and pain of the gall-bladder inducing irritation in the liver from its vicinity, and consequently disturbing its function in the secretion of healthy bile. That the whole secretion of bile was altered, that is, both what came from the *ductus hepaticus* and *ductus cysticus*, I think is made out, from the circumstance of observing the same sort of matter in the duodenum, which we found in the gall-bladder.

This being admitted, we will next assume the position, that that organ will be most disturbed in function, which is nearest to a diseased part, or which is most associated with it in general action—such as diseases or disordered actions in the duodenum, next the gall-bladder, will produce disordered secretion from the liver. Perhaps after these, affections of the stomach, of the small intestines, colon, rectum, or, in short, any particular irritation, or inordinate action of the stomach or bowels, will soon be communicated to the liver, producing disordered action and secretion there, which will add further to the general mischief.

These hints may be useful in indigestion, dysentery, and other chronic ailments. Another thing that calls for attention in this case, is the great torpor of the intestinal canal, resisting the most powerful cathartics, and where nothing unusual could be detected on dissection. Might this be owing to the altered condition of the bile not possessing its usual stimulating qualities, whereby the bowels become languid from the want of their accustomed stimulus? This being the case, perhaps cathartics, approaching as near as possible in their sensible qualities to those of the bile, would have been the best in this case,—such as the various purgative bitters, with soap. There is yet another thing worthy of consideration, which is,—what might be the actual cause of death in this case? There appeared to be derangement in no other organ but in the gall-bladder, which was inflamed and thickened in its coats, and suffering from the irritation of stone, but still firm to the feel, and showing no appearance of solution of structure, or of gangrene.

The irritation and pain, therefore, must have so operated on the general system, as to have produced debility in its nervous influence, disordering several functions, and which, together with the debilitating effects of the remedies employed, had so run down the machinery of life, as to have caused the extinction of it. Irritation and pain, therefore, when long continued, may produce death in any case, and which, I think, is exemplified in chronic rheumatism, cancerous and calculous affections, gout, &c. It must consequently be an object of great importance to diminish irritation and pain, at whatever expense, seeing that they are incompatible with the healthy state of the body. When the force of inflammation, therefore, has been greatly broken by blood-letting, then sedatives, with purgatives, may be safely tried for the reduction of the rest.

Were a conjecture admissible in medical reasoning, we would venture to inquire in this place, into what might be the scheme which Nature had in view to rid herself of this gall-stone, as we will suppose that she always makes an effort to throw out a foreign body wherever it is lodged, or otherwise so to fortify herself against it, by the effusion of coagulable lymph, producing thickening and callosity, that it shall produce no irritation. In this case, as the stone was too large to be propelled in the usual manner, through the ducts into the duodenum, it appears to me that the process of inflammation was instituted, in order that the gall-bladder, as was the case, might become attached, by the adhesive process, to the arch of the colon, and in progress of time, by means of the ulcerative absorption, to have propelled the stone directly into the colon, and in this manner out of the body. That this appears to have been her intention, is evident, I think, from the preparation; for although the coats of the gall-bladder are greatly thickened, round and anterior to the stone, yet in the small space where the stone was actually lodged, they are evidently considerably thinner.

It is only necessary to add farther, that we are mistaken in the seat of the complaint, which, all things considered, was not much to be wondered at. We imagined it to be a case of colonitis, and perhaps depending on impacted feces; and were the more persuaded of the truth of our opinion, from the supposed inefficacy of purgative medicines in removing them. These speculations were only overthrown by dissection. From the adhesions, however, which had taken place between the gall-bladder, colon, and mesocolon, it was perhaps as near a guess at the seat of the complaint as our "conjectural art" would admit of. Had the man been permitted to be buried without examination, we no doubt would have sworn that he had died from inflammation of some part of the bowels, which was not remediable by the usual means. Much false reasoning (I apprehend) has been built on similar mistakes.

Along with the above, I send you the preparation of the gall-bladder,[*] with the stone it contained.

Cupar-Fife, 31*st October*, 1824.

XIII.

Case of Concussion of the Spine, tending to confirm the Opinion, that the Nerves of Sensation and of Motion are Distinct. By ROBERT DUNDAS, Surgeon to the British Hospital at Bahia, late Acting Surgeon 8th Batallion 60th Regiment. Communicated by ANDREW BERRY, M. D., F. R. S. E.

THE accompanying case of what I take to be concussion of the spine, which came under my notice but a few days ago, I am induced to offer to the attention of the profession, under the impression that it may serve to throw some light on that most obscure of all anatomical subjects—the nervous system—especially in reference to the question agitated for so many ages by physiologists, whether the functions of motion and sensation are performed by the same class of nerves?—a question which has divided and puzzled the greatest men of modern as well as of ancient times, remaining, even up to the present hour, a *desideratum* in physiological science. The reasoning and experiments, however, of our own distinguished countrymen, Mr Charles Bell, and Dr Wilson Philip, together with the experiments of that enlightened physiologist, Mons. Magendie, have gone far, in my opinion, towards setting the question at rest; nor should the opinion of the learned Spurzheim on this subject be disregarded, whose clear and powerful mind, and accuracy in anatomical research, it is impossible not to admire, and whose general doctrines, by the by, are more easily sneered at, than answered or refuted. It is not, however, my object, nor is it indeed at all necessary, to go into the reasoning and experiments of these gentlemen. It is sufficient to observe, that they are fully convinced, by experimental, anatomical, pathological and physiological proofs, that the nerves of sensation and motion, though bound together in the same sheath, are as distinct in their origin, as they are in their final distribution and functions;—that one set is adapted to convey the dictates of the will, the other to convey impressions to the sensorium. Dr Spurzheim states the spinal nerves to be composed of distinct original bundles, the functions of which he believes to be totally different;—that one set consists of nerves of feeling, the other of nerves of motion. This doctrine Magendie again submits to the test of experiment; and, by dividing the posterior roots of the spinal nerves, shows that the corresponding limb of an animal may be deprived of all sensibility; that by a division of the anterior roots, the limb will be deprived of all power of voluntary motion; and that, by dividing the posterior and anterior branches, both sensibility and voluntary motion will be destroyed. There are certainly some difficulties in the way of his experiments, though the result must be considered satisfactory; and the following case forms, I think, no unimportant commentary on the whole.

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[*] The preparation has been deposited in the Museum of the University; and from the gall-stone, a very fine specimen of Cholestrine has been prepared. The chief peculiarity in the gall stone was, that its external crust, which had a pure white colour, was crystalline, that the crystals had in general the irregular form of pearl-spar, but that some of them were distinctly four-sided prisms, broken off at the prominent end. Its structure was crystalline, and radiated in laminæ of transparent matter, with a few streaks of opaque greenish brown grains. It weighed 66 grains, and consisted of scarcely a grain of green colouring matter, soluble in potass, and insoluble in alcohol,—the remainder being pure cholestrine, with all the properties assigned to it by Chevreul.—EDITOR.

Francisço Cesario, *Rua da Lapa*, 35 years of age, by trade a mason, about three months ago, whilst in the enjoyment of perfect health, had a fall on his back, from a scaffolding twenty feet high. He was stunned for a few minutes by the fall, and, on recovering his senses, found that his left side, from the shoulder downwards, was deprived of all power of voluntary motion, but retained its sense of feeling quite unimpaired; and, *vice versa*, that over the right side, the power of voluntary motion was perfect, but sensation totally extinct, so utterly annihilated, that when I first saw him, on the 30th of May, three months after the accident, pricking with needles, or pushing a lancet deep into the muscles, gave not the slightest sensation of pain or uneasiness; yet over this side he had the most complete control and command, the muscles were extremely prominent and powerful, whilst those of the opposite side were particularly flaccid and much wasted, with the foot and hand œdematous. The temperature also of the side and limbs deprived of sensation, but possessing muscular power, was 1½ degrees Reaumur below the side which retained sensation, without motion, whose heat was rather beyond natural, and sense of feeling morbidly increased. It should further be stated, that notwithstanding the sense of feeling was so entirely lost in the right side, yet could he, nevertheless, with the right hand, perceive the weight and consistency of external bodies. From the fourth cervical vertebra upwards, motion and sensation of both sides were perfect; and the line of demarkation was so exactly drawn, that it might be defined by a pack-thread surrounding the neck. His countenance was not expressive, either of suffering or disease, nor were the energies of his mind in the slightest degree impaired. His breathing was but very slightly affected; the pulse, in each arm, 70, soft, full, and regular. No headach, no thirst; tongue clean; appetite has continued good throughout, but he could procure no motion without resorting to purgatives or enemata, and his feces were invariably passed in hard, small scybalæ, varying in colour, from light clay to pitchy black. He slept little, but soundly, and said he never perspired since the accident. Skin, however, soft; his urine, from the first, had been natural in quantity, but passed with some degree of hesitation, and when left to settle, deposited a very copious, white, cretaceous sediment. I had the patient stript, and examined his body most minutely, without being able to detect the slightest appearance of violence or disease, except that, on pressing the tenth dorsal vertebra, he complained of a slight degree of tenderness, but unaccompanied by any perceptible swelling, or other external appearance of disease. His head received no direct injury from the fall.

I visited the above case in conjunction with Senor Jozé Alvares de Amaral, a gentleman of worth and character, and late principal surgeon to the Miseracordia Hospital in this city. Circumstances foreign to the case rendered it imperative that the man should be removed to the Portuguese public hospital, though, from the deep interest which the case excited, I offered to take upon myself the expense of his treatment, and I much regretted that the object and regulations of the hospital over which I have charge, forbade his admission under my own immediate care. The officers of the Miseracordia Hospital, however, obviated the difficulty; for, on the case being represented to them, they not only ordered that the patient should have a private room, but granted to Senor Amaral and myself the very polite permission to visit and prescribe for him. On my first seeing the patient, the mode of treatment adopted was active purgatives every second night, with stimulating *enemata*, and blistering the spine from the occiput to the sacrum. On entering the hospital twelve days ago, I proposed the exhibition of the *nux vomica*, and we commenced with five grains night and morning, directing the dose to be increased daily. Active purgatives were also ordered to be occasionally administered, and the spine to be again blistered. For five days after commencing the *nux vomica*, there was no very sensible alteration. On the sixth morning, the dose being increased to twenty grains, he complained of spasmodic twitches of the muscles of the right side, and of the face and throat, whilst the opposite side was affected with constant tingling pains, and a most disagreeable sensation of heat throughout the side and limbs. We ordered that the dose should be gradually increased; the spasms became more violent, and began occasionally to attack the muscles of the left as well as the right side; and on visiting the hospital yesterday morning, the eleventh day, the dose being now augmented to forty grains daily, we found that the patient had been attacked in the night with trismus, and violent convulsive motions of the muscles of the back and extremities. He also complained much of a sense of constriction about the chest and throat, with very acute pains in the left arm and leg, over which, he says, he can at times exert some control; also, on pushing a lancet into the right arm, he can perceive that something has touched him, but without receiving any distinct sensation of pain, whilst the opposite side is morbidly sensible, the slightest touch or motion causing acute pain. Pulse in each arm 86, small and hard. For the present, we have directed that the *nux vomica* should be discontinued.

This communication is now, however, extended beyond my original intention, which was merely to present you with the outline of a case without parallel, so far as I am aware, in the annals of medicine, which goes strongly in confirmation of the reasoning and experiments of the before mentioned gentlemen, and tends, in some measure, to a correct and final decision on one of the most obscure and long contested questions in physiological science. I have avoided enlarging on the many interesting and important points presented by the foregoing case, believing that well attested facts, not long dissertations, are, in the present state of the question, best calculated to advance the interests of medical science, as well as more congenial with the scope of your very important Journal. Should, however, in the progress of the case, any other symptoms or appearances be developed likely to interest my professional brethren, I shall take the liberty, through you, of submitting them to their notice.

British Hospital, Bahia,
13*th July*, 1824.

PART II.

CRITICAL ANALYSIS.

I.

Uebersicht über die Volks—Krankheiten in Gross-britannien, mit Hinweisung auf ihre Ursachen und die daraus enstehenden Eigenthümlichkeiten der Englischen Heilkunde. Von H. F. Autenrieth, M. D., Mitglied der Kaiserlichen Leopoldinischen Akadamie der Naturfascher zu Bonn, &c. &c. &c.

A General View of the Diseases Endemic in Great Britain, together with Remarks upon their Causes, and an Account of the Peculiarities they occasion in the Practice of the English Physicians. By H. F. Autenrieth, M.D. Member of the Imperial Academy of Natural History at Bonn, of the Wernerian Society, and of the Edinburgh Medico-Chirurgical Society.

The author of this work is already known to many of our readers, by a communication on the subject of Fever, which appeared in a former Number of this Journal, (Vol. XVIII). * A perfect acquaintance with the English language, and a laudable degree of zeal and industry, have enabled him to acquire, during his residence among us, a knowledge of our medical institutions and literature much surpassing that usually attained by our foreign visitors. Aware of Dr Autenrieth's abilities and opportunities, we little expected, when we commenced the perusal of his work, to meet with any passage which might expose him to the imputation of either prejudice or ignorance, a charge preferred not altogether without reason, against the authors of two late publications, upon the State of Medicine in Great Britain. We were not indeed surprised at finding our medical knowledge undervalued, and our literature depreciated, either by *Broussais*, who, being ignorant of English, was misled in a manner unworthy of his high reputation, by trusting to a few translations, and a meagre article in the Bibliotheque Medicale,—or by *Tommasini*, who knew so little of our best authors, that he instituted a serious comparison between *the celebrated* Professor Frank and the *celebrated* Englishman Dr Thomas. Every department of English literature has been so often assailed by the calumnies of French critics, that we are become callous to their ridicule, and habitually accustomed to their censure. Let them laugh at Shakspeare,—let them strip Newton of his discoveries,—let them abuse the genius while they use the labours of our physiologists, *we* shall not complain. We disregard the misrepresentations of the French Professor, and we regret those of the Italian; but, at the same time, cannot avoid expressing our conviction, that the errors of both arose more from a deficiency of information, than from a wilful determination to do us injustice. But, that a laborious German, who had access to every source of information, a man of considerable erudition, and more than ordinary attainments, should arrive at conclusions fully as unfavourable to our medical writers and practitioners as those supported by either Broussais or Tommasini, and should indulge in censures still more sweeping and severe than they had ventured on, was an event for which we would have been totally unprepared, if we had not previously been intimately acquainted with our author's character. We would willingly enter upon the delineation of a character, in which there is so much to praise; but as even private encomiums are indecorous in the pages of a public journal, we shall only pourtray those traits, which have had such an influence upon the tone of our author's mind, that we cannot wonder at his adopting views of the nature he has promulgated in the publication now before us. Pursuits purely intellectual, a philosophical turn of mind, considerable enthusiasm, together with the peculiar circumstances of his medical education have created in him, an habitual tendency to investigate causes, however remote, an ardent attachment to theory, and an inordinate desire to obtain general and systematic views concerning the nature and cure of diseases.

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* Note on his father.

Not satisfied with a knowledge of the more immediate and palpable sources of morbid actions, he searches for what produced the first and original deviation from health; and having once fixed upon a favourite cause, soon invests it with unlimited powers, derives from it the most complicated and dissimilar diseases, and consequently, in treating them, directs all his efforts to effect its removal. We have no doubt that when Dr Autenrieth has had more experience, (he had but just settled in his native city when he wrote this work), he will acknowledge that the spirit of philosophizing may be carried too far in medicine, and that the habit of attempting to explain every thing, has, with justice, of late fallen into disrepute even in Germany. These, remarks, we trust, will prepare our readers for the analysis of Dr Autenrieth's work, which we shall make as brief as possible, except where the novelty of his opinions demand a more protracted consideration.

Our author commences with lamenting the comparatively unimproved state of Practical Medicine, and the changes and fluctuations which constantly take place in the theories and opinions of physicians. This he ascribes chiefly to the habit of drawing general conclusions concerning the nature and treatment of diseases, from observations made at particular places, and during a limited space of time; for he observes, that local circumstances often contribute to modify diseases, and that time exerts a similar influence. He argues that time may operate in a twofold manner. One is through the agency of the seasons, and its existence cannot be doubted. This influence produces certain complaints, and disposes diseases in general to assume a certain character at certain seasons of the year. Its effects were much studied by the ancients by whom it was termed *Genius Morborum Annuus.* The second mode in which time operates, is by producing a change in the general character of diseases, of a much more permanent nature than the former; for, when once affected, it continues many years. This corresponds with the *Constitutio Morborum Stationaria* of Sydenham, and, if its existence were really proved, would be of the greatest importance to the practical physician; for it is evident, that if a general character or *constitution* of diseases continues for many years in succession, his general plan of treatment must be adapted accordingly, and must, of course, be changed when the constitution alters. In a word, if we assume the gastric, inflammatory and nervous, as the principal types of diseases, and if each lasted for ten years successively, physicians would find purgatives, &c. useful during the first period, antiphlogistic remedies during the second, and a stimulating plan of treatment during the third. That something similar to this actually takes place, Dr Autenrieth endeavours to prove, by the general history of diseases during the last twenty years. The opinions he advances in this part of his work are so singular, and the conclusions he arrives at are so novel, that we have thought it but right to present our readers with copious extracts from what he says upon this subject.

" These transitions from one periodic *constitution* to another, have caused much confusion in medical opinions, and have occasioned the downfall of many an infallible system," &c. &c.—" The English boast much of the great improvements in science, and deride the ignorance of their predecessors, regardless of the proverb, Every thing has its season. Whenever the periodic constitution undergoes an alteration, they either uphold obstinately their usual plan of treatment, to the manifest injury of their patients, or else blindly embrace some system, to them new, but which really rests upon old and established principles. In general they fail not to make use of so much exaggeration, that none but the best informed physicians can detect the fallacy of their opinions. The Medical History of Great Britain affords many striking proofs of the truth of these assertions, and is replete with examples of the singular obstinacy with which the English cling to opinions once formed, " &c. &c. &c.—" Even to this day, a warm contest is carried on (less in books than in the debates of learned societies) between the senior part of the profession, who still incline to Brunonianism, and the junior, who attribute almost every disease to inflammation. Both indeed appeal to experience for proofs of their doctrines, and both seem to be ignorant, that while the propriety of their practice, as applied to particular cases, remains unimpeached, the very nature of diseases may have been altered. About the end of the last, and during the three or four first years of the present century, the proportion of nervous fevers to other diseases was as one to eighteen in Plymouth (Woolcombe), as one to sixteen in London (Willan), as one to ten in Newcastle (Clarke), and in Liverpool as one to five (Curry). Typhus, and diseases closely allied to it, prevailed at the same time on the Continent, and committed much havoc in various epidemics, as that of Erlangen, Jena, Kiel, &c. &c. &c. Yellow fever depopulated Cadiz and Seville at this period, and Europe in general suffered from repeated visitations of influenza. An inclination to a speedy palsy * of the organs, unpreceded by violent reaction, and unaccompanied by any marked symptoms of a gastric or inflammatory nature, constituted, during that period, the characteristick form of acute diseases, which were always preceded and accompanied by an unaccountable degree of debility. Stimulating and tonic medicines obtained therefore much celebrity; and every physician who practised during that period, attests the injurious or even fatal effects which resulted from venesection and other depletory measures. An epidemic pneumonia prevailed in many parts of Germany, during the years 1800, 1801, and 1802, in *which the speedy production of an inflammatory state, by means of bark, was the only method which afforded a chance of recovery.* These facts must convince every impartial mind that the *constitution* of diseases has undergone a great change since that period, and serve to explain why physicians did not then employ copious venesection, &c. but were obliged to content themselves with ordering cold affusions, acids, mercury, &c. The reign of typhus seems to have ceased with the influenza of 1804, when a new constitution began, at first more remarkable for the absence of nervous fevers and other contagious diseases, than for any peculiar character of its own. Catarrhal and rheumatic complaints, partly attributable to the weather, prevailed for some time, and fevers of an intermitting type became more frequent, *forming an evident transition from the purely typhous constitution to that of vascular excitement, which afterwards appeared.* Some *remnant* of the typhous constitution was indeed still perceptible in the pectoral complaints which prevailed in London during the winter of 1804, 1805, and were attended with remarkable debility, requiring the greatest prudence in the use of venesection, which, according to Bateman, was seldom necessary, and occasionally proved fatal. The constitution, however, soon developed itself more decidedly, became more general, and obliged physicians to relinquish their former method of treatment, and adopt new measures. Derangement of the alimentary canal became its prominent feature; and in the autumn of 1804, diarrhœa, terminating in dysentery, was often met with. This constitution suffered indeed a check from the cold of 1805, but it increased again, and became still more prevalent, manifesting itself by headach, a bitter taste, a loaded yellow tongue, irregularity of the bowels, nausea and anorexia. The utility of purgatives became so obvious, that Hamilton's doctrines soon obtained as much celebrity as had been before enjoyed by the stimulating system. The nervous fever at Nottingham in 1807—the dysentery at London in 1808—the scarlatina at Edinburgh in 1805—and the measles at the same place in 1808—all required the purgative plan of treatment; and calomel became the favourite cathartic," &c. &c. &c.—"The progress of the gastric constitution was less rapid on the Continent than in England, where it was more favoured by the diet of the people. Its formation on the Continent was likewise retarded by other circumstances. Thus, in Germany, the purely *nervous constitution* had scarcely yielded to catarrhal and rheumatic affections, when it *was again revived in that unhappy country by the political occurrences* of 1805, 1806, 1807. It *seldom, however, assumed the character of true typhus, but was mixed with a rheumatic and intermitting type.* Under these circumstances, then, *gastric constitution* could develope itself but imperfectly; still, however, the great benefit derived from the exhibition of emetics and calomel *proved its latent existence*," &c. &c. &c.—"The gastric constitution was scarcely established, when a new one, viz. the inflammatory, appeared on the stage, and has ever since continued, sometimes combined with the gastric, and at other times, when favoured by the seasons and local circumstances, raising itself to the rank of the chief performer. Venesection, which had previously fallen into disrepute, became once more a favourite remedy, and in the course of a few years was pushed so far, particularly in Great Britain, that Sangrado's maxim, 'C'est une erreur de penser que le sang soit necessaire à la conservation de la vie, on ne peut trop saigner un maladé,' seems to have been the general rule of practice."

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* Palsy is often used by the Germans to imply merely a diminution of vital energy. Thus they speak of palsy of the liver, &c.

Our author then proceeds to enumerate several examples, to prove that, in Germany, the inflammatory constitution had begun in 1810; and since which time it has continued, being often accompanied, however, by gastric symptoms. He states, that this change in the constitution was particularly remarkable in the epidemic which raged in the north of Germany in 1812, 1813, after the ravages of war.

"Although, but a few years before, the strongest stimulants had been necessary to obviate the palsy which came on even in the beginning of the disease, yet an opposite practice was now required, and antiphlogistick remedies were alone found capable of preventing the vascular excitement from terminating fatally. The inflammatory constitution became general at the very same period in Great Britain. Doctor Clutterbuck had indeed ascribed the origin of fever to inflammation of the brain so early as 1807, and about the same time Dr Steiglitz of Hanover had recommended the antiphlogistick treatment of scarlatina, in preference to the stimulating plan then in vogue; but their opinions did not gain many converts, as long as the inflammatory type remained subordinate to the rheumatick and gastrick constitutions. But in the autumn of 1809, and the winter of 1810, it had increased so much, that even Dr Bateman was obliged to prescribe venesection in fevers, a practice quite at variance with his former views, &c. &c.—But it was not until 1813, when the inflammatory constitution had fully developed itself, and the bad effects of violent determinations to the head in nervous fevers, could not be averted except by decisive measures, that venesection came into general repute."

In that year Dr Mills, Dr Thompson, Dr Blackall, and Dr Armstrong, all published in favour of blood-letting in various diseases. After stating that the epidemic fever which prevailed in all parts of Great Britain in 1814–16, partook more of the gastrick character in Ireland, and of the inflammatory in England and Scotland, he proceeds to observe—

"It was soon literally believed, that there is no disease in which the lancet ought not to be used; and as the human mind is ever prone to extremes, it was admitted as a pathological maxim, almost universally credited both in England and Scotland, that there is but one species of fever, viz. the inflammatory, and consequently venesection is the only true antifebrile remedy. Such is the case in England at present; and it must have always been so in every part of the world."

We have made very long extracts from this part of our author's work, partly lest he might complain of our having curtailed his arguments, and partly because we felt that a full detail of his opinions conveys the best refutation of his conclusions, which are, 1*st*, That there exists a stationary constitution, according to his sense of the expression; and, 2*dly*, That the origin of medical systems and doctrines may be traced to the nature of the constitution which prevailed at the time they became fashionable. To prove the first, our author has used considerable labour, and more ingenuity than would seem decorous for the support of a plain fact; and what has been the result? an historical scheme of these constitutions, so complicated, and so obscured by combinations, transitions, *remnants*, and fine-spun distinctions, that it forcibly reminds us of an ill-digested geological arrangement, unintelligible by every one but its author. Thus, the nervous constitution was in 1804 succeeded by a sort of non-descript or neutral period, which he represents as compounded of a catarrhal and rheumatick tendency, with some admixture of an intermitting type of fevers in general; a remnant of the old typhous dynasty, and a forerunner of the future gastric constitution; so that this *transition-formation consisted of five elements.*

The gastric constitution, however, soon got the better of its colleagues, and reigned in undisputed possession of Europe from 1806 to 1810, when the inflammatory constitution made, as our author expresses it, its first appearance on the stage. In proving this ingenious hypothesis by historical evidence, our author has not scrupled to press diseases into his service, which, a more accurate examination will prove, tend rather to contradict than support his opinions. Thus, he adduces the frequency of yellow fever, about the end of the last century and the commencement of the present, as a proof of the nervous constitution which, he asserts, was then prevalent. Even granting that the yellow fever is strictly and uniformly an asthenic disease (which we are inclined altogether to deny), why does he make no mention of the numerous epidemics of that disease which have occurred since 1804? The reason of his silence is obviously, that an opposite mode of proceeding would not have answered his hypothesis; for, noticing the intrusion of asthenic epidemics during the latter period, would have broken the continuity of his gastric and inflammatory constitutions, and would have confused the regularity and clearness of his chronological arrangement. Exactly the same observations apply to the influenza, which Dr Autenrieth brings forward as a proof of the nervous constitution; for he is entirely silent concerning the several influenzas which have appeared *since.* Another unfair argument our author calls to his aid, is derived from a source he had no right to use. Thus he cites diseases depending on the influence of the seasons, the *genius annuus,* in order to prove the existence of a *stationary constitution,* although he himself lays it down, that the latter is entirely distinct from and independent of the former; a principle he ought not to have violated, by allowing his gastric constitution to be checked or retarded by such causes as a cold winter, or war; for if the stationary character of diseases be so much under the influence of local and temporary circumstances, its boasted powers must dwindle into almost nothing. Dr Autenrieth's ideas upon this subject are not entirely novel; for besides Sydenham, whom he quotes, several of his own countrymen have broached a similar hypothesis, as may be seen in the 13th Volume of this Journal, p. 388. We do not mean to assert, that diseases essentially the same, cannot assume various forms in various epidemics. Scarlatina, smallpox, measles, and the war épidemics, spoken of in the article just referred to, furnish sufficient proofs to the contrary. We are inclined, however, to account for such differences (when any explanation can be rationally attempted), by a dissimilarity in the various circumstances which form, or modify, the *genius annuus,* or by a dissimilarity in the condition of the sufferers. Thus, can we wonder that the fever which raged among the deplorable French fugitives who returned in 1813 from the disastrous campaign in Russia, should have been of a malignant putrid type, while, among the Saxons and Prussians, to whom it was communicated, but who had not previously suffered similar hardships, the tendency of the fever became inflammatory, and required a cooling and antiphlogistic method? (*Vide* Vol. xiii. l. c.) But we must hasten to Dr Autenrieth's *second* position, That the doctrines and systems of the day arise from the nature of the existing constitution.

From this it would follow, that Dr Hamilton's conviction of the utility of purgatives in fever, scarlatina, chorea, and other complaints, must have arisen from observations made during the gastric period. Unfortunately, however, Dr Hamilton's book appeared in 1805, the very commencement of that period, and his conclusions were drawn from a practice of thirty years. Of the utility of the purgative plan in typhus, he was apprised by the accidental effect of antimonials, in the epidemic of 1781, which he observed were useful only when they happened to produce catharsis. This induced him to give purgatives a fair trial in that disease; and having found this method successful for many years, he at length gave the result of his experience to the world, in 1805. So that, so far from having been forced into this practice by the gastric constitution, he had persevered in it during the entire duration of the previous nervous period, a fact contrary to Dr Autenrieth's hypothesis; for none but the stimulating method *ought* to have succeeded during that time. As we have so often commented on the "Elementa Medicinæ" of Brown, we shall at present only observe, that his theories were framed in his closet, and did not even lay claim to the merit of being the result of a legitimate induction from experience. Their novelty, their apparent simplicity, and their supposed demonstrative nature, fascinated his followers, and prevented them from entertaining any doubts concerning their utility in the treatment of diseases. This very circumstance favoured their rapid dissemination; for they were unincumbered with tedious practical details, and were believed applicable, without the labour of discrimination, to every circumstance and every exigency. Typhus and ardent fever, apoplexy, and sea-scurvy, were equally judged to be within the sphere of their efficacy. Did this result from theory, or from experience? Certainly from the former; and consequently, Dr Autenrieth has no right to argue, that diseases in general *required* the stimulating method, merely because that method was adopted by Brown's followers. They indeed asserted, that their treatment was judicious, and asserted that it must prove always so, in every place, and in all circumstances; but the delusion did not last long in Great Britain, for the writings of that period abound in opposition to the stimulating plan of treatment. Indeed the history of Brunonianism appears to us conclusive against Dr Autenrieth's hypothesis. It was adopted with enthusiasm in Germany and Italy, just as it began to lose popularity at home, and, as an eminent writer complains, it continued to mislead the Continental physicians for many years after it had been abandoned in England.* Will Dr Autenrieth explain this, by asserting that England was subject to the influence of a different constitution from that which prevailed on the Continent? Such an explanation would ill agree with the candid confessions made by several, who expressed their bitter repentance for *the harm they had wrought* during the time they had, with a blind zeal, practised according to the precepts of Brunonianism. Is this reconcileable with Dr Autenrieth's hypothesis, that Brunonianism was a very useful thing until the year 1804? Concerning the origin of the antiphlogistic treatment, Dr Autenrieth has not been more fortunate; for several of the authors he cites drew their experience of its utility from practice, during a period antecedent to the beginning of the inflammatory constitution in 1810.† Thus Clutterbuck, in 1807, inculcated the antiphlogistic treatment of fever from the result of many years experience; and Armstrong, in 1810, confesses that he had long since abandoned the stimulating plan, from finding it injurious. Although we agree with our author, that the depletory system has been carried too far by many of our countrymen, a fault *we have* been perpetually labouring to prevent, yet we do not think him justified in asserting, that *Sangrado's physiological aphorism* was universally adopted, or that the brief pathological creed he gives us credit for had at any time many professors in Great Britain. The errors and abuses committed by the ignorant ought not, in candour, to be converted into a subject of reproach to the scientific and thinking part of the profession—and they were numerous, who never countenanced such excesses. If we were anxious to retort upon Dr Autenrieth, we would adduce the testimony of Hufeland, who records still greater extremes among the Germans. He says, " He recollects well the great abuse of blood-letting by barbers and ignorant practitioners, when in the beginning of his career he had been consulted in cases which had obviously been made worse or even fatal by untimely and too frequent bleeding." And again—" He has lived to see the gastric and Brunonian periods pass away; and now he can almost imagine, from the thoughtless manner in which venesection is again employed, according to the name of diseases, without regard to the individual, the state of the pulse, or circumstances, that he is carried back to the earliest periods of his professional career." (*Vid.* vol. xiii. p. 376. of this Journal.) And in another place the same author confesses, that his countrymen were at one period so run away with by Brunonianism, that venesection was almost struck out of the list of remedies; all diseases were converted, *in the heads* of physicians, into astheniæ; and even in Universities it was maintained in Theses, that no true inflammatory disease existed, and that blood-letting was always useless! Would Dr Autenrieth think it fair in us to convert these confessions into a subject of national reproach against his countrymen? His mode of dealing with us might indeed authorize, what our better feelings would forbid.

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* *Vide* Lettera del Dottore Giacomo Clark, pp. 41, 42, 43. Dr Clark here cites the author of the Annali di Medicina, 1802, and Tommasini himself, as lamenting the fact adverted to.

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† It would be easy to prove, by the writings of the Brunonians themselves, and, still more so, by the publications of those who *opposed them throughout the whole nervous period* of Dr Autenrieth, that inflammatory fevers were as frequent then as now. Many years ago we stated (*Vide* Vol. XIII. 364), partly from our own knowledge, and partly from the testimony of old physicians, " that the fever which is now treated on the improved principle of moderate depletion, is the common continued fever that prevails in Edinburgh more or less every winter, and in fact the very individual disease from which Cullen and Brown drew their description of typhus." That among the senior part of the profession there should be still found some ready to defend Brunonianism, is but natural; for what has been an *opinion* in youth, often retains its place as a *prejudice* in old age. We are surprised that Dr Autenrieth did not perceive that this very circumstance tends much to weaken his arguments; for it is evident that these persons, at least, perceive no difference between the diseases of the present day and those prevalent thirty years ago; for they think the same method applicable to both. The annual Reports published by the physicians of the extensive Fever Hospital in Dublin, record, indeed, occasional temporary *variations* in the severity and the symptoms of fever, but make no mention whatever of any permanent difference of character, requiring any permanent alteration in the general plan of treatment, since the foundation of that institution in 1804.

To return from this long but necessary digression.—Our limits prevent us from entering into an analysis of our author's observations upon the climate, situation, geognostic relations, and local peculiarities of Great Britain; but we feel ourselves in justice called upon to state, that he has executed this part of his work in an accurate and masterly manner. The following remarks deserve attention.

"The most immediate consequence of the changeable character and comparative coldness of the weather, is a general diminution, and frequently a sudden interruption, of cutaneous excretion—a function intimately connected with the health, &c. &c. The activity of the kidnies is necessarily increased, the moisture of the air promoting absorption, while its coldness prevents perspiration. To this I attribute the increase I observed in my own urine during my residence in Scotland, and which, during some cold, rainy days I spent at Inverness, was so remarkable, that I began to apprehend the approach of diabetis. The different varieties of diabetes, whether arising from cold alone, or connected with a preceding disordered state of the digestive organs, occur oftener in the North-west of Scotland, where the climate is cold and moist, than in the South of England, or any part of the Continent, except Holland."

To the same qualities of our climate he likewise attributes the prevalence of bowel complaints; and adds, that their frequency is much increased by the nature of the diet used by the poor in many parts of the country. Dr Autenrieth's remarks upon the pathology of rheumatism afford a good specimen of his *sagacity* in developing the causes of morbid actions.

"When any part is exposed to a sudden transition from heat to cold, the diseased process commences with a violent contraction of the muscular and tendinous tissues, previously expanded by the heat. So rapid an alteration necessarily produces much disturbance in the vital powers of the part, and re-action, accompanied by a sympathetic affection of the *nervous system*, follows, &c. &c. In addition to this, the perspiration repelled from the surface, and thrown back upon the affected organ, proves the source of a more *material stimulus;* and if its return to the skin be not immediately accomplished, maintains a morbid irritation in the part, which lasts either until its store of sensibility is exhausted, in which case periodic neuralgia may be the result, or until the morbid stimulus is removed from the system by means of some critical evacuation."

Although this explanation seems to Dr Autenrieth quite satisfactory, yet we cannot but think that these sudden expansions from heat, and contractions from cold, savour too much of the mechanical philosophy, not to mention the *material stimulus*, which appears to be rather a clumsy sort of irritant. We are at a loss to discover through what channels the repressed perspiration contrives to concentrate itself so exactly at the rheumatic part; nor are we quite contented with the reasons assigned for the occurrence of periodic neuralgia. As we wish, however, to entertain our readers with our author's theories, not our own, we willingly pass to his next cause of rheumatism, Indigestion.

"The rheumatic process tends inwards, whereas gastric complaints develope themselves in a contrary direction, a fact proved by their connexion with arthritis, podagra, &c. * Both processes must therefore meet. The gastric acrimony increases the irritation arising from the repressed perspiration, and by its union with the latter, produces the species of mixed rheumatism so common in England."

We had always believed that dyspepsia predisposes to rheumatism, not by *setting out to meet it half way*, but by inducing such a debility of the system in general, and of the skin in particular, that the cutaneous functions are discharged with less vital energy, and of course become more liable to suffer from the action of cold. Having explained the *catarrhal* nature of our climate, Dr Autenrieth assigns several good reasons for the English being more liable to acute inflammations, than their more abstemious neighbours on the Continent. His ingenuity here again gets the better of his judgment.

"Experiments on animals prove, that an atmosphere overloaded with oxygen increases the rapidity of the process of combustion carried on in the lungs, and augments the tendency to inflammatory action. As Vogel has disproved the truth of the opinion, that the air every where contains the same proportion of oxygen, we are authorized to conjecture, that the emanation of oxygen, during the day, from a country so covered with grass and vegetation as England, must have a considerable influence upon the composition of its atmosphere, and must of course predispose the inhabitants to inflammatory diseases."

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* These expressions are probably derived from the following passage of Sydenham, when speaking of the plague; he says, "Apparente autem tumore, celebrata venæsectio, cum a *peripheriâ ad centrum* trahat, motui naturæ, qui fit, a *centro ad circumferentiam*, inducit motum plane adversantem."—*Sydenhami Opera*, Edit. 3tio. p. 81.

On first perusing this passage we were somewhat startled, and began to apprehend, that the boasted verdure of our island was in reality a national calamity, the extent of which we were endeavouring to ascertain, by computing the quantity of oxygen all our pastures and meadows evolve during a summer's day, when luckily we recollected two circumstances, which we trust are sufficient to avert so great an evil. The first is, the well known law, which Vogel's experiments have not controverted, and which regulates the mixture of gaseous bodies, so that the oxygen evolved at the earth's surface, must become equally diffused throughout the whole extent of the superincumbent atmosphere, exactly in the same manner, and for the same reasons, that the natural proportion of oxygen in the air near the earth, and in the higher regions, is constantly equal. Now, happily for us, the height of the atmosphere is so great, that an immense volume of additional oxygen would be required to make its increase every where perceptible; so that we humbly conceive the inflammatory diathesis of our countrymen, is not augmented by the oxygen evolved from our fields during the day.

The second defence we have against this aerial enemy, is derived from the force and frequency of the winds in these kingdoms, for the Doctor himself confesses, "a calm day is a rare occurrence in Great Britain. If his hypothesis were correct, would not our neighbours the French have often reason to complain, during the prevalence of westerly winds, that they are injured by receiving the superabundant oxygen of England? Dr Autenrieth is so partial to this hypothesis, that he has introduced it in two other places, and has thereby much impaired the value of his other excellent observations upon the causes which render inflammatory diseases more common in some districts of Great Britain than in others. Dr Autenrieth next enters into a consideration of the subjects enumerated below, and treats of them all in a manner which displays much learning and accurate investigation. This part of his work must be very interesting and instructive to all foreigners; but as it treats of objects familiar to our readers, we shall not attempt its analysis. The concluding remarks, however, deserve some notice.

"From what has been said it is evident, that the extremes of affluence and poverty occur frequently in Great Britain. Both are calculated to injure the constitution. Experience however proves, that privations are less detrimental to the health than the opposite extreme, except indeed they amount to a state little short of actual starvation. The class of persons who want many of the comforts and all the luxuries of life, acquire a *tenaciousness* of life, much greater than that enjoyed by their wealthier neighbours. The poor man falls a victim to acute diseases much less frequently than the rich; a fact strikingly exemplified during the fever lately epidemic in Ireland. Severe and protracted labour terminates in convulsions and sudden death much oftener among the rich than among the poor. In the Great Lying-in Hospital at Dublin, where more than 100,000 women have been delivered, such cases have very rarely occurred. The same observation applies to the Highlands, as I was assured by several respectable practitioners at Inverness, who had never met with an instance of sudden death after parturition, among the peasantry. But at the foot of the Grampian Hills, where the country is more fertile and the peasantry comparatively better fed, they do not enjoy this immunity to so great an extent. Dr Davidson of Aberdeen, and Dr Henderson of Perth, have both witnessed a few of these unfortunate cases. Burns and Hamilton speak of them as being by no means very unusual at Glasgow and Edinburgh, &c. &c.—The effects of poverty upon the procreative powers, are still more remarkable. Twins are extremely common in the Highlands, and still more so in Ireland. In the Lying-in Hospital at London, twins occur once in every 85 births, and three children at a birth, once in every 14,393; while in Dublin the proportions are, 1 to 49 for the former, and 1 to 1462 for the latter. Singular as this circumstance must appear, yet something analogous may be observed in the vegetable kingdom. Thus, plants growing in a meagre soil run sooner to seed, and produce it in greater abundance, than they do in richer ground."

This mode of accounting for the matter, may well entitle the Doctor to a vote of thanks from our Irish neighbours, whose increase is acknowledged by all to be prodigious, and considered by many to be a frightful evil. They are a grateful people, and will no doubt thankfully submit to a plentiful diet, if the beneficent and wealthy inhabitants of England will avail themselves of such a certain method of checking their productive tendency! Among the causes which have rendered scrofula and its consequence, consumption, so frequent in Great Britain, Dr Autenrieth with justice reckons, a sedentary life and exposure to a vitiated atmosphere, as the most operative. The crowded state of the population in large cities and manufacturing towns, together with confinement in small and badly ventilated apartments, he rightly considers as the chief root of this extensive evil. Dr Alison has elucidated this subject with so much clearness, that we need not recount the reasons which induced Dr Autenrieth to form the same opinion. We may observe, however, that like most other foreigners, he inveighs too strongly against our climate, and lays too much stress upon its tendency to produce scrofula, phthisis, &c. That our climate does not deserve so much blame, is proved by facts admitted by our author, and also stated by Dr Alison. Thus, in the parish of Rufford, near Forres, in the north of Scotland, the average annual mortality is extremely small, and the deaths from scrofula and phthisis are comparatively much less frequent than in the towns of England,—and yet, according to Dr Autenrieth, the climate of this part of Scotland is one of the coldest and most humid in Great Britain. The same remark applies to the climate of Wales; and yet we find, that in speaking of the average mortality observed among the inhabitants of the Welsh mountains, our author exclaims, " the mortality is so trifling, that one would almost believe the people are not mortal in that part of the kingdom ! " If then those who are exposed to what may be considered as the worst specimens of our climate, are nevertheless very healthy, can our climate be so unwholesome as it is generally represented by foreigners? Our climate is certainly not very agreeable, and its coldness and moisture cannot be denied. But these properties seem to exert no baneful influence upon our peasantry, who are the most exposed to the weather. Neither do our sailors experience any injury to their health, during a sojourn of many weeks among the cold dense fogs near Newfoundland. Some other reason must be looked for to explain the prevalence of scrofula among us. In France, Germany, Sweden and America, Dr Alison has shown, that scrofula may be almost considered as an inhabitant of the large towns exclusively. In England there are nearly as many large cities and populous towns, as in any two of the above countries; and to this circumstance, not to any peculiarity of our climate, the greater prevalence of scrofulous complaints ought to be attributed. Dr Alison has so amply illustrated this subject, that we shall content ourselves with referring our readers to his valuable paper for further information. As usual, our author proceeds from facts to speculation.

> " I am inclined to think that scrofula is often connected with an hereditary venereal taint. Repelled gonorrhœa has a tendency to attack the glandular system, and produce the disease termed *gonorrhœal scrofula.* The children of persons so affected, often labour under symptoms extremely similar to those of scrofula. "

He thinks that syphilis is so general, particularly in towns, that the constitutions of a great number of the present generation must be more or less contaminated. Our author derives that numerous class of diseases we call pseudo-syphilitic, from the hidden seeds of lues, and contends, that many of the affections termed scrofulous may be referred to the same source. We are ready to grant, that the children of persons afflicted and broken down by syphilitic complaints are very frequently attacked with scrofula; but this does not justify us in connecting the venereal disease with scrofula any farther than as a cause of debility in the parents. For the fact seems to be, that unhealthy parents generally produce weakly children, who, no matter what may have originally caused their parents' debility, are more liable than robust children to scrofulous affections. As to the disease our author terms *Gonorrhœal Scrofula*, we must confess it is unknown to us.

The Doctor's reflections upon the origin of the dyspeptic complaints so prevalent in Great Britain, are excellent, with the exception of the following hypothesis: "The animal diet so generally used renders less bile necessary to neutralize the chyme than is actually secreted. Its superabundance is consequently soon manifested, by bitter eructations, bilious diarrhœa," &c. &c. This explanation accords but badly with his previous observation, that dyspepsia prevails among the poor who use a bulky and innutritious vegetable diet. The Doctor adduces his own experience in proof of the justice of his explanation. "I myself, like many other foreigners, experienced these ill effects from a *purely animal diet.*" If animal food be productive of bilious symptoms, how does it happen that the Northern nations, who subsist almost entirely upon meat, are not more bilious than the Southern, who use a vegetable diet? Any sudden change, whether from a vegetable to an animal diet, or the contrary, will be likely to produce indigestion. With regard to the force of habit, in facilitating the digestion of certain substances, we may remark, that it extends farther than is generally imagined, and even seems to be hereditary. At least, on no other principle can we account for the fact related by Captain Lyon, concerning the Eskimaux children, who, while mere infants, swallow and digest rancid blubber, and various disgusting food. Such articles of diet would disagree with the healthiest European adult, and would produce serious symptoms if given to our infants. This fact is particularly deserving of notice; for the children of the Eskimaux begin to enjoy their native luxuries at so early an age, that they cannot have the advantage of any previous habit of their own.*

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* To this hereditary habit we must attribute the well known fact, that the children of Europeans, *born* in the East Indies, are, with respect to their capability of

Our limits will not permit a detail of Dr Autenrieth's interesting observations upon gout and calculous complaints; but we cannot pass unnoticed the picture he draws of *British spleen* and melancholy, a topic all foreigners seem to delight in.

"Hypochondriasis is one of the most frequent consequences of chronic diseases of the abdominal viscera; and although it is not quite so common in Great Britain as *we* are accustomed to believe, yet it is so usual, that one often can perceive, in the expressions and actions of the most rational Englishman, evident marks of the spleen."

Our clouded skies and smoky atmosphere are as usual taxed with throwing this shade of gloom over our disposition; but the origin of this melancholy is not always so poetical; for Dr Autenrieth hints, that it is often connected with *repelled morbid productions*, among which he of course includes his favourite cause of all obscure affections, repelled itch. We cannot differ from Dr Autenrieth when he derives many of our maniacal cases from the sudden reverses of fortune, so frequent in a mercantile nation; but we are at a loss what to say to the following conjecture. "Pehaps, too, the great disposition of the inhabitants to bigotry,* as is evinced by their over-strict observance of the Sabbath, contributes to extend this evil." If this tend to produce melancholy or spleen, we have much to fear for the wits of our own fellow-citizens, who observe the Sabbath still more strictly than their English neighbours. And yet it has never been remarked that there are more madmen in Edinburgh or Glasgow, than in other cities, or that the Scotch are more apt to *lose their senses* than other people. To be serious, we are convinced that melancholy and its inevitable consequence suicide, are not of more frequent occurrence in Great Britain, than in France and Germany. If our limits permitted such a digression, we could satisfactorily prove, by authentic documents, the contrary to be the fact. Whoever has read the annual returns made by the police in France or Prussia, must be aware that suicides are more frequent in those countries than in England. The Seine annually receives more victims than the Thames; and yet the inhabitants of London are believed by foreigners to be always oppressed with spleen, and have the credit of being more in-

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supporting heat, and their *diseases*, in the same situation with persons born and educated in Europe. They are therefore generally sent to Europe at an early age.

* Dr Autenrieth ought not to have selected an *observance of religious customs* as an habit favourable to melancholy or mental derangement. Religious insanity arises from impressions made by over-anxiety about certain religious and theoretical subtilties, but never from practical religion.

clined to suicide than their Continental neighbours.† The reason is obvious. Every newspaper in England details the account of every suicide that is committed, while in Germany such accounts never appear in the public prints, and until lately they were likewise excluded from the French papers. In fact, one suicide or murder in England makes more noise, and attracts more attention, than twenty such occurrences would do on the Continent. If an unfortunate man or woman jumps into the river from Westminster or Waterloo bridge in the evening, every foreigner in London is sure to be entertained at his breakfast in the morning, with a circumstantial detail of the drowning, the coroner's inquest, the previous history of the unfortunate person, &c. &c. But in Paris, you must take the trouble of going yourself to the *Morgue* in the morning, if you wish to ascertain the misfortunes of the night. Then indeed you will seldom fail to find one or two corpses laid out for the inspection of the inquisitive. If recognised by their friends, well and good; if not claimed, they are in due time privately disposed of by the police. No more inquiry is made about the matter; and the whole business is carried on with decency, it is true, but also with a degree of unconcern and apathy truly philosophical. In the following observations upon apoplexy, Dr Autenrieth inculcates what seems to us a very dangerous practical principle, and indulges in a severe, but we hope to prove, an undeserved invective against our medical brethren.

" Venesection is considered by English physicians as a specific in apoplexy, because they universally attribute this complaint to a state of exhaustion, caused by the pressure of the blood-vessels on the brain. They do not seem to entertain the most remote idea that apoplexy so often depends upon *an original paralysis of the nerves*, apparently owing to a sort of sudden loss of vital power, a circumstance which makes it necessary to pursue a stimulating treatment in the first instance, before venesection can be applied to relieve the determination of blood to the head, which afterwards may occur. If the stupor continues in spite of the venesection, it is the general custom of the English physicians, with the exception of Cooke and a few others, to let more blood—*in order more certainly to kill their patients.*"

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† " Why the English have been supposed to be more obnoxious to mental maladies than other people, I have never, though sedulously inquiring, been able to discover. May not this obloquy have originated in Dr G. Cheyne's popular treatise, entitled " The English Malady ?" There is scarcely a foreign writer who does not quote his authority for imputing to the natives of this island, an extraordinary predisposition to melancholy, and particularly to a species of hypochondriacism, to which Dr Cheyne gave the generic term *spleen*, and which *foreign nosologists have introduced into their systems, and classed by this vernacular appellation*."—*An Inquiry into certain Errors Relative to Insanity, &c.* by G. M. Burrows, p. 86. The same author states (p. 93.) from official returns, that the proportion of suicides in the capitals of Paris, Berlin, and Copenhagen, in relation to that of London, is as 5 to 2, 5 to 3, and 3 to 1.

An accusation of unpardonable ignorance and blind temerity, so boldly preferred against the whole profession, with *a few* exceptions, will be best answered by a reference to the works of our most eminent physicians. The writings of Fothergill and Heberden are not so forgotten, that the profession in general can be supposed ignorant of their opinions. The former expresses himself with great hesitation about the utility of bloodletting in either apoplexy or palsy, and the latter condemned this remedy altogether. This we mention, not because we agree with these illustrious physicians, but in order to prove, that English pathologists of the present day cannot be accused, with justice, of not knowing the arguments brought forward in support of the stimulating plan. The fact is otherwise; the merits of this plan have been anxiously discussed; and it was not rejected until after a most accurate and impartial appeal to experience. Dr Abercrombie, Dr Cheyne, and Dr Good, do not by any means recommend the practice of which Dr Autenrieth accuses us; they do not advise an indiscriminate use of the lancet in apoplexy, without regard either to the effects of bloodletting, or the nature of the case; nor have they been negligent in using various other remedies. Can any one who has read their works, and they are read by all, for a moment credit our author's assertion, that English physicians bleed apoplectic patients at all hazards, and under all circumstances? It is true, that none of the above mentioned writers agree with Dr Autenreith in prescribing a *stimulating treatment in the first instance*, as a preparative for venesection; for, whatever may have been the cause of the attack, or the constitution of the patient, they had learned from experience, that stimulating remedies are not only useless, but injurious, until the immediate danger of the fit has been removed or diminished by depletory measures. * Dr Autenrieth seems peculiarly attached to the idea of stimulating the system up to the bleeding point. In a passage already cited, he speaks of an epidemic pneumonia, in which the speedy production of an inflammatory state, by means of bark and ether, afforded the only chance of recovery! If we are not mistaken, he had here in view the epidemic mentioned by Frank, and which arose from an unusual form of intermittent fever. Frank, however, exhibited bark, not in order to save the patient by producing an inflammatory state of the system, but to avert the danger of that state, by preventing the recurrence of the ague, on which it depended. We know that many German physicians ground their practice upon the division of apoplexies into sanguineous and nervous; and if we wished to retort upon our author, we could relate several cases, treated as nervous, in one of the most celebrated clinical hospitals in Germany, but which dissection proved had arisen from lesions of an inflammatory nature. On the other hand, it is only necessary to compare the symptoms laid down by Richter as characteristic of nervous apoplexy,* with several of the cases recorded by Dr Abercrombie, to be convinced that the depletory system is often useful, even in the form of apoplexy termed nervous. Richter, indeed, himself acknowledges,† that this division is not always conformable to nature, and that it is impossible to distinguish one species from the other, merely by the symptoms observed during the attack itself. The diligence our author displays in treating of the subjects enumerated below,‡ makes us the more regret, that the pleasure and instruction his work is calculated to convey, should be so often interrupted by passages which evince confirmed prejudice, we had almost said hostility, towards the physicians of Great Britain. Not contented with inveighing against our doctrinal errors, he charges us more than once with being downright practical murderers. Thus, in speaking of the causes of dropsy, he observes,—

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* See vol. xv. p. 29. Edinburgh Medical and Surgical Journal.

> "I am satisfied that the medical practitioners may be justly accused of frequently laying a foundation for this disease, by the ridiculous extremes to which they push the use, or rather the abuse, of the lancet, in almost every disease. If their poor patients do not fall an immediate sacrifice to loss of blood, and I could relate several such unfortunate occurrences of which I was an eyewitness," &c. &c.

As we should violate the rules of good breeding, so necessary in medical controversies, were we to doubt the *Doctor's own testimony* as to what he himself witnessed, we willingly pass, without further comment, to his observations on the fevers of Great Britain, a part of his work we in vain attempted to analyze; for, as our readers will perceive, an omission of any part of Dr Autenrieth's ingenious, but theoretical, mode of treating this subject, might give him just cause of complaining that we had broken the chain of his arguments. Plain facts, and direct practical inductions, afford the reviewer a choice of selecting what he deems most interesting, and may even be condensed into the form of aphorisms; but we dare not attempt to shorten or consolidate a train of theoretical reasoning.

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* Richter, Specelle Therapie, 8r. Band p. 808.

† Opere citato, p. 798.

‡ Insanity, dyspepsia of the poorer classes, gastrodynia, pyrosis, scirrhus of the pylorus, liver complaints, erysipelas, diarrhœa, and dysentery.

"The most important effect produced by a want of cleanliness and ventilation in the dwellings of the poor, is a peculiar impression on the nervous system, which weakens the elasticity of the vital forces, and renders them liable to sink under the attacks of any disease, much sooner than might be expected from the degree of previous excitement. When this debilitated state of the nervous system arrives at a certain degree of intensity, a morbid process is frequently the result; and when the disease is established, it becomes capable of propagating itself by contagion, and constitutes typhous fever. The darkness by which this subject is enveloped, seems, however, impenetrable, and has not been diminished even by the dictatorial assertions of those who support the now fashionable doctrine of inflammation. Still we may look upon it as established, that any very considerable debilitating impressions upon the nervous system, may produce typhous symptoms. Thus the latter are frequently induced by excessive flooding after parturition, large doses of opium, depressing passions, or a scanty and innutritious diet. Habitations surrounded by heaps of accumulated filth, and an atmosphere vitiated by putrid exhalations, will always prove the fruitful sources of nervous fevers. But the important phenomenon now appears, that, in spite of the nervous debility, and the remarkable tendency of the organs to palsy, the commotion in the vascular system may yet be so considerable, at least in the commencement, that the disease assumes the appearance of an ordinary inflammatory attack. The modern theory of fevers, promulgated nearly at the same time by Clutterbuck in England, Broussais in France, and Tommasini in Italy, depends entirely upon this circumstance. These gentlemen, supposing typhus to depend, not upon debility, but excessive excitement, propose to obviate the latter by venesection, &c., and reject the stimulating system of the Brunonians. Unfortunately for science, the controversy has been waged with little regard to the attainment of truth; for both parties have evinced so much pertinacity in the defence of their opinions, and so little candour in their statements, that it becomes extremely difficult to decide, amidst such a mass of conflicting testimony. On the whole, it seems probable that the *truth* lies in the middle, &c. &c. —The very commencement of a nervous fever exhibits decided marks of depression, arising from the action of some debilitating cause, as contagion, &c.—This debility of the nervous system is manifested by the symptoms which precede the actual appearance of fever. They consist of mental depression, want of sleep and appetite, nausea, and sensation of extreme debility. The sanguiferous system, as happens in every material ailment, becomes affected sooner or later, and assumes an increased degree of activity, in order to restore the natural equilibrium. This occasions fever, the violence of which is proportioned to the predisposition of the vascular system to energetic action. The degree of this predisposition depends upon the influence of various circumstances, as climate, &c. &c. But to return to the chief cause. Since the nervous system is so much depressed, the storm of the vascular system is drawn upon, *the former as being the part capable of least resistance, and consequently a peculiar inflammation of the nerves is induced, which naturally tends, not to suppuration, but to palsy of the organs.* The nervous system is excited to reaction by the inflammation ; and therefore a calor mordax accompanies the first appearance of delirium, subsultus, and the genuine typhous symptoms. When the contagion is concentrated, *this stage of typhous reaction* takes place instantly, and, without any long train of precursory symptoms, denoting debility. Still, however, the tendency to syncope, and apoplectic symptoms, with which the sudden breaking out of the disease is accompanied, evinces extreme nervous depression, sometimes amounting to palsy. Cases even have occurred of persons, who, from exposure to the highly concentrated infection of the plague, have expired as suddenly as if they had been struck with lightning. Rapid as is the accession of the nervous depression in less violent cases, it is succeeded not less rapidly by vascular excitement—both appear as it were at the same moment, and together form an attack of febrile apoplexy, *the typhous process afterwards becoming more and more developed, on account of the peculiar impression of the cause of the disease.* This development, if uninterrupted by art, tends from its nature to a fatal termination. For so soon as the remaining strength of the patient is completely exhausted by this combination of nervous and vascular excitement, the dangerous period is at hand, when palsy of the organs makes its appearance, and is dangerous in proportion to the degree of nervous debility produced in the commencement of the attack. The first debilitating impression made in the nervous system, would even appear often capable of occasioning permanent palsy," &c. &c.

From this short account of the course observed, with some unimportant deviations, by every idiopathic nervous fever, it is clear, our author observes, that the indications are, to moderate the vascular excitement by depletory measures, and to support the sinking strength by means of stimulants. These opposite indications are both essential, and a practice exclusively founded on either must prove equally detrimental ; the difficulty is to determine the proper period for each. He then states, that besides this idiopathic and contagious fever, which may be called genuine Typhus, there are others which commence with symptoms purely inflammatory, but terminate in typhus. In such cases, he conceives, the nervous system becomes affected by over-excitement. This is very common in Great Britain, and it is to such fevers that the exclusively antiphlogistic practice is applicable. Our author denies, however, that venesection *arrests* or cuts short the typhous process. It acts by preventing it altogether. The contradictory observations of the English and Irish physicians, he thinks, may be reconciled by the fact, that genuine idiophatic typhus is more usual in Ireland, while inflammatory fever ending in typhus is more prevalent in England. The former is occasioned, or at least favoured, by poverty, bad diet and unwholesome air, and is consequently also met with in English cities, among the poorer inhabitants. As these causes are more extensively felt in Ireland, genuine typhus is always very frequent in that country, and often rages epidemically when its progress is favoured by a failure of the crops, or the influence of the weather. The climate of England and Scotland, together with the manner of living of the inhabitants, predisposes the latter to inflammatory complaints. The contrary may be said of Ireland:

" Clutterbuck speaks of petechiæ, subsultus, &c. as very rare in England, but says that the tendency of blood to the head and feverish excitement are extremely common and violent. The testimony of numerous observers in Ireland, proves that the typhus fever of that country, is, on the other hand, generally accompanied with great debility of the nervous system, and a sinking of the strength, *from the very commencement,* without a proportional degree of previous excitement. Petechiæ are as common in Ireland as they are rare in England, and often appear on the second or third day; the dreadful danger also of a sudden palsy of the organs, is frequently exhibited in the typhus of the former country. A bilious character is often superadded to these symptoms, and much increases the difficulty of the treatment, both by favouring the tendency *to a putrid dissolution of the blood,* and by increasing the disposition to dysenteric symptoms. This is the chief reason why the Irish physicians in general make more use of purgatives than of venesection, in the treatment of typhus; for being well aware of the distinction between typhous and genuine inflammation, they use the lancet with a prudence which forms a striking contrast with the practice of their English brethren. This moderation has, consequently, in spite of the dogmas of the *inflammation creed,* rendered their success remarkable. Thus Dr Grattan calculates, that in the Irish hospitals, the proportion of deaths to recoveries, for typhus patients, varies from 1 to 22–30, while Dr Clutterbuck states, that in England, the proportion is as 1 to 5–12. The reader is left to draw his own conclusions from this fact!"

We give Dr Autenrieth's explananation of the phenomena of fever, not with a view of commenting on it, but merely as a specimen of the theoretical and generalizing system, which he complains is so little cultivated in England. Whether the disinclination our colleagues manifest to enter upon such speculations, be a merit or a fault, we *too leave it to our readers to decide.* We cannot, however, refrain from remarking, that, in his theoretical ardour, Dr Autenrieth has pressed *facts* into his service, and has rather forcibly adapted them to his preconceived arrangement. Thus, nothing *seems* clearer than the distinction he draws between the general character of fever in Ireland and England, or the consequent difference between the treatment of that disease, by the Irish and English physicians. And yet we feel strong doubts concerning the existence of any *such* distinction, between the fevers of these countries, or any *such* difference between the treatment adopted in each. A reference to the excellent work of Drs Barker and Cheyne, on the fever which devastated Ireland during the years 1816–17–18–19, will prove that our doubts are not unfounded; and we may observe, that the epidemic they describe, had gradually increased, without any material change of character, from 1810. It was similar in its nature to the epidemics of 1731,* and 1741,† and differed but little from the no less extensive epidemic which continued from 1797 to 1802.‡ It may therefore be fairly considered as having exhibited the *usual form* of Irish fever. We shall not enter upon a description of the fever then prevalent, because its general nature, so far at least as regards our author's theory, will appear sufficiently from the treatment adopted by the best informed physicians, throughout all the provinces of Ireland.

"In most parts of Munster, the evacuating and antiphlogistic plan was adopted." (Barker and Cheyne, vol. i. p. 441.) "In Conaught, the antiphlogistic treatment was universally prescribed in the early stages." (p. 456.) "In Ulster, the treament was, generally speaking, evacuant." (p. 467.) "In Leinster, as in most parts of Ireland, the antiphlogistic regimen was generally employed in the early stages of the disease, and cordial and stimulant remedies were given in the advanced stages, when such were required." (490.)

Surely this is quite inconsistent with our author's statement. "That the fever of Ireland is generally accompanied with great debility of the nervous system, and a sinking of the strength *from the very commencement*, without a proportional degree of previous excitement." Does it not likewise prove, that the treatment adopted by the Irish physicians was not so different as Dr Autenrieth represents, from that recommended by their English colleagues? The treatment of fever was, in fact, conducted on the very same principles in both countries; and if the mortality *was* greater in England, it cannot be attributed to an imprudence in the use of the lancet, on the part of the English physicians, for they did not employ the antiphlogistic regimen, more extensively, than the Irish physicians, as is proved by the above extracts. May not the same reasons which render "fever a milder and less fatal disease, in the southern, than in the northern provinces of Ireland,"* "and which make it, in every part of that country, much less fatal among the poor, than among the rich,"† also conspire to produce the smaller mortality in Ireland, as compared with England? There is no general difference between the circumstances of the inhabitants of Ulster and those of Connaught, except that the former are more advanced in the arts and comforts of life, and consequently subsist less exclusively on potatoes and a vegetable diet, than the latter. They are, therefore, according to Dr Autenrieth's own principle, less *tenacious* of life, and yield more readily to the attacks of acute diseases, than their more southern and poorer countrymen. A difference of a similar nature, but to a far greater extent, exists between the rich and poor in Ireland; and accordingly, the comparative mortality from fever, in these two classes of society, is observed to differ still more widely. The peasantry, manufacturing labourers, and tradesmen, who compose the mass of the English nation, enjoy a degree of comfort unknown to the poor Irish;* their diet, in particular, is much more nutritious; and it is well known that they eat much more animal food. May not these circumstances render them more liable to danger when attacked by fever? It may be stated, in confirmation of this suggestion, that the poor in Ireland recovered not less frequently when they were destitute of medical aid, than when they had the benefit of constant advice and attendance; and that the rich perished equally, whether they were neglected or attended to.† The mortality, too, among the comfortable country farmers, and the better orders of town artisans and trades-people, was nearly as great as among the rich. In making these observations, we feel that we are not detracting from the real merits of the Irish physicians, who, as a body, signalized themselves by their ability and zeal during the late epidemic; and indeed we only express the opinion entertained by some of the most enlightened practitioners among them, who have too much knowledge, and too much candour, to seek to raise their own reputation, or depreciate the skill of the English physicians, upon grounds they know to be untenable. Want of space prevents us from commenting on Dr Autenrieth's remarks concerning lepra and scurvy, or his *speculations* about the causes of purpura. His observations, however, upon the diseases arising from repelled itch, are in many respects so singular, that we cannot refrain from presenting them to our readers.

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* Barker and Cheyne, vol. 1. p. 4.
† Oper. citat, p. 7.
‡ Ib. p. 20.

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* Op. cit. p. 94, vol. 1.

† Ib. p. 95.—" From many quarters we have learned, that one-third of those who were attacked with fever in the upper ranks became its victims.

* " The poverty of the Irish in general appears from the fact, says our author, that it is not unusual for Irish students to bring several sacks of potatoes along with them to Glasgow, where they pursue their studies, until—their potatoes are consumed! We are sure that *this fact* was communicated to Dr Autenrieth by some humorous Irishman."

† Op. Cit. p. 6.—" The poor abandoned, to adopt the expression of Rutty, to the use of whey and God's providence, recovered, while those who had generous cordials and great plenty of sack, perished;" and yet such a treatment corresponds with Dr Autenrieth's ideas concerning the " original " debility in Irish fevers.

"The treatment of itch is still more important in its consequences. Although some may regard this as a groundless hypothesis, and others may look upon it as the result of exaggeration, yet the accurate observer of Nature will recognise, with certainty, a host of diseases which owe their existence to the imprudent treatment of the itch. The characteristic nature, and uniformity of symptoms, for which these diseases are remarkable, affords a clear proof of the truth of this doctrine—a truth still further confirmed by the success of the practice it suggests. This practice appears particularly satisfactory, when compared with the uncertain and *guessing* treatment of chronic diseases, so common among English physicians. In Great Britain, the itch is generally repelled by means of ointments, which weaken the powers of the skin, and drive the disease to the internal parts of the body. The common people are so much in the habit of using an ointment composed of butter and sulphur, that many physicians scarcely ever have an opportunity of even seeing a case of itch. But the physicians themselves are not less attached to this application, and increase the tendency of the complaint inwards, by prescribing at the same time purgative medicines. This imprudent treatment is luckily often counteracted by the wearing of flannel, so common particularly among soldiers; for by this means a constant diaphoresis is kept up."

Dr Autenrieth next observes, that several diseases besides the itch produce deleterious effects when driven in upon the system; and he asserts, that each species of disease so repelled, is attended by a definite and constant train of ill consequences.

"Thus, gonorrhœa, when treated by injections, occasionally produces an extremely painful swelling of the knee, which is characterized by a bright red and shining appearance of the skin—by an ill-defined boundary, and by its inclination to disappear suddenly without any manifest cause. This swelling seldom suppurates. That produced by repelled itch is quite soft—is not much inflamed at first —is unattended with considerable discoloration of the skin—and has a better marked boundary than the swelling from repelled gonorrhœa. The tumour arising *from repulsion of achores*, is still more distinctly defined, and is likewise attended with but slight inflammation. Like that produced by repelled itch, it is painful on pressure upon the middle of the knee, but is distinguished from the former, by having on its surface a few turgid veins. The tumour from *repelled arthritic debility* is firm, very painful and attended with periodical erysipelas and œdema of the feet, frequent desquamation of the cuticle, and the formation of abscesses in its vicinity. In a word, different diseases are frequently followed by different forms of the same complaint."

An accurate knowledge of this fact is said to be often useful. Thus, if the complaint is owing to repelled cutaneous eruptions, great benefit may be derived from eruptions produced by art; but if the complaint arises from repelled gonorrhœa, such eruptions would be detrimental, and we must trust to the exhibition of diuretics. Cancer often arises from unknown causes; in general, however, its different species, such as cancer of the womb, breast, cheeks, and lips, may be traced to an excessive indulgence in venery, scrofula, urinary acrimony, itch, leprosy, &c. *Cancer of the under lip* is not unfrequent in Scotland, where, as in Germany, it is generally a *consequence of itch repelled by* external applications. *Cancer of the womb*, so frequent in England, particularly when preceded by scirrhus of the breast, may be *referred to suppressed gonorrhœa*, and cancer of the cheek in men of a middle age, to dram-drinking.

Although we are aware how much the profession owes to the author's father, Professor Autenrieth, for his valuable observations upon the utility of producing artificial eruptions in certain diseases, and although we ourselves have occasionally witnessed bad effects from an imprudent use of sulphur ointment under circumstances, yet we cannot but suspect that Dr Autenrieth has pushed his pathological inferences on this subject too far; for, in addition to the tumour of the knee, and cancer of the under lip above mentioned, he refers many cases of pyrosis, leucorrhœa, phthisis, mesenteric disease, hydrocephalus, &c., to the same source. In short, if he can extort from a patient a confession of either itch or sulphur, he is no longer at a loss to account for his complaints; but immediately retraces their progress to this favourite and prolific cause.

We are sorry that our limits will not allow us to follow Dr Autenrieth through his very excellent analysis of the facts and arguments brought forward in the controversy concerning the non-mercurial treatment of the venereal disease, a treatment to which he seems almost a convert. It is satisfactory to find, that the force of prejudice on this subject is wearing away fast even in Germany. Thus, our author was told by Mr Brüninghausen, that he had tried the non-mercurial treatment very extensively, among the soldiers quartered in Würzburgh, and that its success had really astonished him. We cannot at present take any notice of the fault Dr Autenrieth finds with the education and acquirements of British practitioners in general. One of the gravest accusations he prefers against us, is want of system and want of theory. Dr Clarke has well refuted this charge, in his answer to Professor Tommasini, and we ourselves have expressed our opinion upon this subject on various occasions, so that we need not now come forward in defence of our countrymen. Our Author's objections to the Scotch mode of conducting clinical instruction, we have also already considered, for they are the same as those previously advanced by Professor Tommasini.

II.

Observations on Injuries of the Spine and of the Thigh-bone; in Two Lectures delivered in the School of Great Windmill Street. The first in Vindication of the Author's Opinions against the Remarks of Sir Astley Cooper, Bart. The second on the late Mr John Bell's Title to certain Doctrines now advanced by the same Gentleman. Illustrated with nine Plates. By CHARLES BELL, Surgeon to the Middlesex Hospital. London, printed for Thomas Tegg, 73, Cheapside. 1824. 4to. pp. 101.

WE have a deep-rooted aversion to controversy, for two reasons;—*first*, instead of promoting the interests, or advancing the progress of science, it too often leads to the indulgence of malevolent feelings or personal hostility;—and, *secondly*, our resolution to treat Greek and Trojan with fair and even-handed justice, prevents us from espousing the cause, or becoming the advocate of either party. We express this sentiment, not because we think Sir Astley Cooper in the wrong, and Mr Charles Bell in the right, nor because we think that there are faults on both sides, but because we are assured that the misunderstanding between these gentlemen can do no good to the cause of surgery, and because we conceive our character, as disinterested guardians of science, requires us to pass over without notice the mere matters at issue between them, and simply inquire what are the actual merits of the information contained in the two Lectures now before us. The public or the profession will assuredly, in their own good time, decide on the respective merits of the parties, and the justice of the cause of each. We cannot hope to influence their opinion; and we are utterly unconscious of any wish to do so.

In the First Lecture, on Fractures of the Spine, and their Effects on the Spinal Cord, Mr Bell, after stating the difference between fracture of the spinous processes and that of the body or arch of the vertebra, commences by informing his pupils, that " the immediate causes of death, from such a condition of the spine, are, *first*, inflammation of the spinal marrow; *secondly*, contusion or rupture of the spinal marrow." To these he afterwards adds, extravasation of blood from ruptured vessels, which therefore may be regarded as a third cause. He then proceeds to distinguish the symptoms of the former from those of compression or concussion.

" Instead of finding a man with fractured spine lying with his lower extremities motionless and insensible, we may chance to see him jump suddenly out of bed, or struggling under the hands of assistants, or, under the influence of delirium and priapism, talking gaily to the nurse. These are melancholy symptoms, boding the very worst,—worse than paralysis;—he will die before the fifth day."

To impress this on the recollection, Mr Bell mentions from his case-book the chief circumstances of an instance of fracture of the body and ring of the eleventh dorsal vertebra, in which these symptoms actually occurred.

Inflammation of the spinal cord may follow, not fracture only, but almost every kind of violence, as forcible stretching, or what Mr Bell names, after the old surgeons, *diastasis*, in which the vertebræ are violently separated, but again resume their situation; and *subluxation* when their edges meet, but without restoring the natural position of the bones.

" This accident happens to young people," says Mr Bell, " and from the operation of a force which, in advanced years, would fracture the bodies of the vertebræ. A weight on the head and shoulders overpowering them, and bending them double, the articulating processes are burst from their connections. If they again fall into their places, the case is *diastasis;* but sometimes their edges meet, then it is subluxation;—they are not restored to their natural position. The body is bent forward as if the spine were distorted by disease, and the spinous processes of the vertebræ are felt to project, being at the same time deranged from the right line, and leaving an unusual space between them."

This accident is so liable to give rise to ambiguity and mistake, that Mr Bell expresses, on a case given by Sir Astley Cooper, in his Treatise on Dislocations and Fractures, an opinion widely different, of the nature and extent of the injury. While the latter gentleman ascribes the sudden incurvation, without palsy of the limbs, to the circumstance of three or four of the spinous processes being broke off, and the muscles of one side being torn, Mr Bell asserts that these processes could not be broken; and if they were, that their fracture could not prevent the individual from rising to the erect posture, or cause permanent distortion of the spine.

"Fracture of the vertebræ," says Mr Bell, "is not attended with such distortion; and I am happy to be enabled to inform you, that, after such an accident, the edges of the articulating processes are absorbed, and in due time the patient resumes the upright posture. I have seen such a case, where, in the first instance, it was supposed that the spinous processes were broken; but the space betwixt the vertebræ, the acute angle at which the patient was bent forward, the absence of all the usual symptoms of paralysis, and the gradual restoration to the perpendicular position after many months confinement, left no doubt of the nature of the case. Let me not fail to remind you, that in all cases of violence done to the spine, and especially when the vertebræ are thus violently separated in subluxation or diastasis, the theca and membranes may be so injured, that a slow or chronic inflammation may be set up, and that a paralysis may thence arise, which, though it comes on slowly, is of the most formidable nature." pp. 11, 12.

A third cause of death,—generally of very speedy operation,—consists of effusion of blood from rupture of vessels, causing, as it does with regard to the brain, fatal compression or disorganization, which very soon is attended with a similar result.

"Another cause of death," says Mr Bell, "in the case of diastasis and subluxation of the vertebræ, is extravasation of blood. This is most apt to occur when the injury has been a consequence of falling from a height. In examining the spine of a man who had slipped from a haystack, and came with his head to the ground, and who remained insensible, and soon after died, I found a separation of the third and fourth vertebræ; and on perforating the sheath, the blood gushed from it. This sudden effusion of blood upon the base of the brain, and into the spinal canal, by rupture of the veins, you will distinguish from effusion of coagulable lymph, which is attended with protracted symptoms, and is altogether a distinct case." pp. 12, 13.

This information is followed by a sarcastic criticism on a case related by Sir Astley Cooper, in which symptoms of twelve months duration are said to be ascribed to effused blood, which was found liquid on dissection. In our account of Sir Astley Cooper's work, we adverted to this case for the purpose of remarking its similarity to those related by Mr Chevalier, in the 3d volume of the Medico-Chirurgical Transactions, and of showing, on rational pathological principles, what we conceived was the proper treatment. But when we perused it, we thought not of drawing the conclusion,—that the symptoms, which had continued for many months after forcible stretching of the spinal column, arose from the effusion of blood; and any one who reads it attentively will perceive, that no such conclusion is drawn by the author. In point of fact, the particulars of the case were communicated by Mr Heaviside, a well-known pathological collector, who attended the patient with Dr Baillie and Sir Astley Cooper; and no mention is made of the symptoms being caused by blood, or of the blood continuing long fluid. The words are as follow. " On sawing out the posterior parts of the cervical vertebræ, the *theca vertebralis* was found overflowed with blood, which was effused between the theca and the enclosing canals of bone. The dissection being further prosecuted, this effusion extended from the first vertebra of the neck to the second of the back, both included. The preparation (in Mr Heaviside's museum) only shows a small proportion of the effused blood, which had become coagulated on the *theca*, as much of it escaped in the act of removal, it being fluid." The report is signed by the initials of Mr Heaviside, and no comment or remark is found, either at the beginning or end, by Sir Astley Cooper. Now, it is not here stated that the effused blood was fluid, but that a small proportion had become coagulated, and much which was fluid escaped. If any inference could be justly drawn from such statement, it would be, that the usual separation of clot and serum had taken place after death, and that the latter had, as is usual, become tinged with the colouring matter of the former. Nor is there any attempt to ascribe any of the symptoms to this effusion; although it may be reasonably inferred, that those which appeared on the 7th June, and continued till death on the following day, depended on this effusion. On the whole, it does not appear that Mr Bell has either established his assertions concerning this case, or contributed, by his observations, to illustrate its nature. Knowledge of similar examples of disease of the spinal cord would lead to the conclusion, that the part originally injured, from the first cervical to the second dorsal vertebra, was in a state of chronic inflammation; that this chronic disease caused all the symptoms, and finally terminated, as often is the case, in bloody extravasation in the theca. The greatest defect, in our opinion, of the dissection, consists in neglecting to make a longitudinal section of the cord, and expose the state of its nervous matter and internal vessels.

At this part of his Lecture, Mr Bell enters on very debateable and uncertain ground. After requesting the attention of his pupils to the symptomatic effects which ensue in various muscular organs after injury of the spinal cord, he dashes all at once into a testy and captious criticism of the whole observations of Sir Astley Cooper on this subject. Yet we cannot perceive that Mr Bell has himself entirely avoided some of those faults with which he has charged Sir Astley Cooper in terms so unmeasured, and in so contemptuous a tone. We submit the passage to our readers, as the most certain method of communicating a correct and unbiassed notion of our author's sentiments.

"In the first place, the bladder becomes distended; and, if not relieved, this of itself will occasion death by inflammation. This is so obvious a consequence, that the author to whom I have already referred has not overlooked it, although he has failed to dwell upon it in the manner which its importance demands. The next fertile source of mischief is distention of the intestinal canal; and connected with this, we have to observe the remarkable flaccidity of the abdominal muscles: the derangement of the actions of respiration, and the heaving of the margins of the chest, as a necessary consequence of the defect of action in the abdominal muscles. On these subjects, so interesting to the physiologist, but, which is more to the point, so important to the suffering patient, there is not one word in these works before me. Does the author know that the abdominal muscles and the muscles of the perinæum have any thing to do with the diaphragm? He has not for a moment entertained a thought that the viscera of the abdomen are compressed and supported during life by the diaphragm, abdominal muscles, and muscles of the perinæum. Consequently he has not thought of the flaccidity and relaxation of the abdominal muscles, as connected with the distention of the viscera; nor does he hint at the means of giving relief!" pp. 13, 14.

Now, we cannot refrain from thinking that this is "out-heroding Herod" entirely. It is certainly pushing criticism to its uttermost verge, to suppose that any surgeon, however partial or limited in his physiological views of muscular action, can be ignorant of the power of the abdominal muscles, their influence on the motions of respiration, and especially in counteracting the force of the diaphragm, and compressing the contained bowels. How would Mr Bell like, if, at this moment, when we are actually making an effort to speak and think respectfully of the diligent anatomical teacher of Windmill Street, we should put the question, Whether he remembers that the author, whom he now charges with overlooking the functions of the abdominal muscles, was the first who studied their mechanism in preventing and producing protrusion of the bowels? Is it at all likely, we should ask, that the two-fold action of sustaining and compressing the bowels, and counteracting the force of the diaphragm, can be unknown by a surgeon who repeatedly performed the operation for replacing protruded intestines, and has even put a ligature on the artery which is situate behind these organs? We have the highest respect for the unwearied diligence, the great ingenuity, and indefatigable zeal of Mr Charles Bell; but we cannot agree with him in supposing that Sir Astley Cooper, however superficial his views may occasionally be of physiological questions, can be unaware of this very obvious one. Of the influence of the muscles of the perinæum we say nothing. Their connection with the action of the diaphragm is remote and indirect; and it is, at the best, an ingenious refinement to dwell on their action, or their power of supporting and compressing the pelvic viscera.

Mr Bell, however, is still more inexorable, and grants no quarter even on points which admit of much doubt and considerable variety of opinion. In our account of Sir Astley Cooper's work, we mentioned, in terms of commendation, his distinction of the symptomatic effects of fractures of the vertebræ, according as the injuries occur above or below the third cervical vertebra, or, in other words, as the cord is injured above or below the origin of the phrenic nerve. Comparison of the observations of Sir Astley, with what we had personally had occasion to witness, induced us to think them correct, and to recommend them as such to the attention of our readers. We have again perused these observations, and we see no just reason to change the opinion which we then formed. It may indeed be possible to select a few passages to which a captious critic would find it easy to object on one account or other; but this is not the mode in which the correctness of semeiographical details, or of pathological explanations, is to be estimated. They must be taken as a whole, and the individual parts must be examined in connection with each other. We regret to remark, that Mr Charles Bell has overlooked this first principle of critical justice; and has selected, from four quarto pages of matter, in which we continue to think the surgical student will find much instruction, the single observation, that, "in fractures of the cervical vertebræ, below the origin of the phrenic nerve, respiration is difficult, and performed wholly by the diaphragm, the power of the intercostal muscles being destroyed by the accident" (p. 555.); and for no other purpose but to censure the doctrine of the unassisted action of the diaphragm in respiration, and to blame Sir Astley Cooper because he has not availed himself of the opinions of Mr Bell on the influence of the *upper external respiratory nerve*, (the *portio dura*), in the process of respiration.

"Being satisfied with giving the origins and insertions of the diaphragm, and calling it a muscle of respiration, young men may

may not see the absurdity of describing a man breathing by his diaphragm alone! But if the subject of muscular action, as it regards respiration, has been fairly put before them in a philosophical and rational manner, such a mistake as this could not be made. The youngest student would then perceive, that there must be two powers in operation before the respiration could proceed. He would be led to inquire what other nerves descend from the neck. But for a teacher to do this, would be to acknowledge certain discoveries made in these rooms, and would amount to a degree of liberality which I have not yet had the satisfaction of recording." p. 14.

Now, we cannot perceive that the faults, with which Sir Astley is charged, are so heinous as to merit this severity of castigation. To omit noticing the auxiliary power of the abdominal muscles in respiration is at most a trivial oversight; or it may be viewed as an implied consequence of breathing with the diaphragm, that their action is also concerned when the spinal cord is injured below the origin of the phrenic nerve. All that is meant in such injuries is, that the intercostal muscles cannot act, and, therefore, that the mechanical changes in the dimensions of the chest must be effected without their assistance. Much less reason is there in taxing a writer with ignorance, misrepresentation, or illiberality, because he does not adopt explanations which are at the best mere individual opinions, or ingenious hypotheses, and the utility of which, even as hypothetical explanations, rests on very uncertain ground. Mr Charles Bell has been long invested with the useful and honourable task of communicating to others the principles of his art. He cannot fail to know that it is an indispensable duty, whether this be done in the lecture-room, or in the didactic work, to select from the mass of facts, opinions and doctrines, only those which are best established, and are most practically useful to those whose instruction he undertakes; and if he think on the matter calmly and deliberately, candour will oblige him to acknowledge, that the time of the disciple is not to be lightly occupied, nor his mind filled with new speculations on the uses of nervous cords, which are not established on the most certain foundation. It is most reasonable that Mr Bell should employ his ingenious mind in inquiries into the functions, individual and relative, of the nervous system; and we doubt not, that, in due time, the actual merit of his discoveries will be justly appreciated; but the expediency of introducing these speculative views into practical works may well be questioned; and we think it is a point in which the prudence, not the liberality, of the writer is concerned, to determine whether he is to take up his pages, and the time of his readers, with matter of this superfluous description.

The subsequent criticism of Mr Bell, on the distention from flatulence, depending, not, as Sir Astley Cooper states, on diminished nervous influence of the intestinal tube, but on the impaired action and diminished pressure of the abdominal muscles, is not equally liable to the same objection. But it may be justly said, that if Sir Astley Cooper has overlooked the action of these muscles, Mr Charles Bell has very much exaggerated their influence. We cannot suppose the former gentleman unaware of their compressing power; and we doubt not that he regards it as so obvious as to be implied or understood, in all instances in which the intestinal action is mentioned; but the opposite states of the intestinal tube, as to degree of excitability in morbid states of the spinal cord, are too well established to be questioned. Sir Astley Cooper nowhere speaks of "secretion of air."

To the last subject of discussion in this Lecture we proceed with reluctance and hesitation. It is the proposal of applying the trephine to the spine, and raising a portion of depressed bone. Sir Astley Cooper had stated, after enumerating the usual consequences of fracture, with depression of the spinous process, his apprehension,—that, whatever be done, the majority of such cases will prove fatal; that rest was essential to ossific union; but that ossific union would not save the patient, if the pressure on the spinal cord was not removed. In illustration of this opinion, he related an example in which Mr Cline, ascribing the symptoms to compression, actually applied a trephine to the spinal arch, and, cutting it through, removed the spinous process and the arch of bone which was supposed to press on the enclosed cord. The only case in which this was tried did not succeed; and Mr Cline had no subsequent opportunity of putting his opinion to the test of fair experiment. We frankly confess, that, when we read this case, we scarcely thought it requisite to form any opinion about the merits of the proposal. Without regarding it as either impracticable or dangerous in its effects, we considered it as not likely ever to become an established rule of surgical practice. There is one case only in which it can be requisite;—and that is, when the spinous process or its plates are actually driven in on the cord, or into its substance. Yet, what is requisite is not always expedient or useful; and instances of depression of the spinous plates will occur, in which it will be of no consequence to attempt elevation. Sir Astley Cooper has himself admitted, that if such accident occur to the first or second cervical vertebræ, death will be too instantaneous to admit of any surgical relief. Whether it can be useful in depressed fractures below this situation, can be determined in no other mode than by actual trial; and perhaps, after all, it may come to be a matter of individual opinion and personal responsibility. It can do no good where there is simple fracture, concussion, extravasation of whatever kind, inflammation, or any of its effects. Under these circumstances, it appeared quite unnecessary to enter into minute investigation of the merits of the proposal, and by no means necessary to charge its authors either with ignorance or with wanton and cruel appetite for operation. Mr Charles Bell, however, cannot sit in silence to hear such shocking innovations proposed: and his indignation is kindled into most irresistible vehemence by the repetition of these heretical doctrines in the weekly reports of a periodical publication. We do not know that the dignity of an eminent surgeon can be much increased by permitting his opinions to flow through such a channel to the public; and it had been for the credit of his art, that Sir Astley Cooper had furnished no pretext for saying, that he made party with a publication, the avowed object of which was to sow dissension among the teachers of the London School.

"This feud, by Jesuits invented,
By evil counsel is fomented;
There is a Machiavelian plot,
Though every nare olfact it not,
And deep design in't to divide
The well-affected that confide,
By setting brother against brother,
To claw and curry one another.
Have we not enemies *plus satis*,
That *cane et angue pejus* hate us?
And shall we turn our fangs and claws
Upon our own selves without cause?"

But whatever opinions he is made to utter in this publication, we have neither space nor leisure to inquire into their justice or their merits; nor do we propose to follow Mr Charles Bell through the train of his argument, in scourging these surgical delicts with a degree of serious indignation and unrelenting severity, which is more calculated to provoke a smile than excite either curiosity or resentment. It is long since it has been the privilege of persons of distinction in our profession to throw out tubs for the amusement of the whale. It is of no consequence whether the great leviathan be made to frisk round a new theory, or a new operation, or even an old one, which has been renovated according to the most recent and improved fashion. Whales must be amused, that they may not tamper with more serious matters; and tubs are the safest and most convenient playthings;

> " Suave mari magno turbantibus æquora ventis
> E terra magnum *monstri* spectare laborem;
> Non quia vexari quenquam est jucunda voluptas,
> Sed quibus ipse careas malis, quia cernere suave est."

That is to say, " it is excessively pleasant to behold the great labour of the whale, not because there is pleasure in vexing another, but because it is comfortable to be exempt from the toilsome amusement in which ambition or simplicity involves others." Surely it is a matter of too great indifference, whether Sir Astley Cooper proposes to dig into the spinal canal of a man who is nearly dead already, or who will certainly die of his injury at no remote period. If he recovers, it only shows how much may be done with impunity to the *ἱερον σπονδυλον*,—*the sacred tube;* and, though it will never be erected into a rule for surgical practice, Mr Bell himself has too much candour, and too much philanthropy, to indulge either in grief or in anger at such an expected result. If he die, it is only what may have been expected, and should cause neither astonishment nor censure. " Have we not seen Pharsalia?" said Cullen. " Have we not seen Waterloo?" we reply.

The second Lecture is on the Surgical Relations of the Thigh-bone, and embraces the subjects of fracture by gun-shot, necrosis, amputation at the hip-joint, *diastasis*, or separation of the epiphysis of the bone, fracture of the shaft of the bone, and its treatment by the double inclined plane, fracture of its neck, and the reason of its imperfect union, and consecutive dislocation, or that which results from disease of the hip-joint. Our readers must not, however, imagine, that, when they read this list of important subjects of pathological and operative surgery, they are to enter into a comprehensive and minute view of each, or to behold ancient principles cleared of their errors, and new ones stripped of superfluities, doubts resolved, deficiencies supplied, and ambiguities determined. It does not appear to have been the intention of the learned lecturer to enter fully into any one subject; and all that we see is a hasty sketch of the whole, where they happen to correspond in a single general principle. The style in which this is accomplished is peculiar, and very worthy of attention. It is bold, dashing and off-hand,—plunging at once with a sort of graphic air *in medias res*, as the Venusian satirist would say, and obviously intended, by this precipitate commencement, to arrest attention and command effect. But somehow or other, whether it be that surgery is really too ignoble a business to furnish materials for dramatic effect, or that the stony hearts of the profession are too conversant with its baser details, or that, in fine, even the genius of Mr Charles Bell is unable to invest it with this romantic and impressive interest, it is certain that the whole tone of the lecture is too matter-of-fact to be pleasant even to the lover of fine writing, and too sketchy and superficial to be prized by the merely surgical reader. We do not know, for instance, that a wretched lame beggar, scarcely covered with the rags of his idleness, and practising for months and years his daily trick of exciting the compassion and importuning the charity of every passenger, is one of the most interesting objects in the world; nor are we convinced that every such object is either a reproach to surgery, or a censure on surgeons. It too often happens that these market-place gentry, of whom our author draws such a melting picture, are the basest, the most vicious, and the most indolent of mankind, and that they find their deformities too fertile a source of emolument from a deluded public, to regret either the ignorance of a surgeon, or the defects of surgical treatment.

The general principle, to which we alluded above, as that which Mr Bell wishes to impress on his pupils in explaining the several effects of external violence on the thigh-bone, is the peculiar disposition of the osseous matter in the extremities and in the shaft of the bone; or what is termed, in ordinary language, its interior structure, as shown by a longitudinal section, which displays, as is well known, a solid crust, the *cortex* as it is here termed, containing a canal, and at the extremities an interlacing network of osseous matter,—termed the *cancelli* or cancellated structure. He shows that a ball striking the latter kind of osseous structure is either lodged in it, or breaks it off entirely; whereas it comminutes and generally scatters the splinters, when it strikes the compact structure of the shaft. He then adduces preparations, or instances of necrosis, to notice a fact which has been known at least since the time of Weidmann, and of which no English surgeon could be ignorant since the publication of the Lectures of Dr Thomson of Edinburgh. We allude to the circumstance of the shaft becoming dead between the epiphysis, and new bone being deposited around it and united to the original epiphysis, which appear to possess a peculiar inaptitude to the process in which necrosis consists. Mr Bell next adverts to the subject of necrosis consequent upon amputation, which he ascribes to the matter of bad suppuration working its way into the medullary canal, and thus effecting death of the bone. Such a result naturally leads him to notice the question of secondary amputation, and more especially of removing the entire bone, under the supposition of its being carious, from the hip-joint,—a measure which Mr Bell deprecates in the strongest and most unqualified terms.

" If you have to amputate," he asserts in language more forcible than correct, " it is only to take off the diseased stump, cut across the bone, and withdraw the sequestra. But see what you may obtain by delay; the portion I now put into your hands was brought away from the face of the stump; you see it is the shaft of the bone wasted and carious, a true sequestra." p. 38.

We cannot pass from this subject without stating a single remark which is naturally suggested by the circumstance of a bone proving to be dead after the lower portion has been amputated. We cannot absolutely deny, that it is possible for the thigh-bone to become necrosed after amputation in certain circumstances;—nor would we doubt, that if purulent matter, either good or bad, benign or malignant, were working its way into the medullary canal, it might so far injure the medullary membrane as to kill a portion more or less extensive of the surrounding bone; but we think it may be made a fair subject of inquiry, in such cases, *whether the cause producing the necrosis did not exist previous to the amputation*, and would have eventually terminated in death of the bone, whether that operation had been performed or not. If the operation is properly performed, it has no natural tendency to cause necrosis; and with regard to " the stump falling into bad suppuration," that, we conceive, instead of acting as a cause of necrosis, is, in truth, an effect of the morbid process or action, whatever it be, which is to terminate in this event, and ought to be regarded as a symptom or indication of the probability of its occurrence. The medullary membrane is liable to inflammation; and this, perhaps, is the most frequent cause of necrosis occurring spontaneously, or without external violence; and it must further be remarked, that this inflammation is more likely to show itself after amputation, which has been performed for any anomalous or obscurely marked disease of the thigh-bone or knee-joint. When amputation is performed on a healthy limb, the cut extremity of the bone, the marrow, and medullary membrane, are quickly covered with blood and lymph, which soon coagulate, and thus form a barrier against purulent matter working its way into the canal. When purulent matter is formed in this last situation, its presence is to be ascribed to inflammation of the marrow or medullary membrane, whatever be the remote cause of this inflammation.

We are not aware that these views which we have now the honour to submit, contain any thing either new or unknown. If not positively found in the writings of Troja, David, Macdonald, Weidmann, and Bichat, they are substantially contained in them, and may be shown to flow as inferences from the researches of these pathologists. We cannot, therefore, perceive any originality, or any thing not perfectly well known, in the following remarks of our author.

"In the preparations on the table, and my drawings hung up behind me, you see, that a ball passing through the meditulium of the bone causes necrosis. If free incisions be not made to give discharge to the matter which collects in the centre of the limb, the matter lodges in the meditullium of the bone, and produces necrosis. It is now some years since I affirmed that practitioners did not know the advantages of free incisions in gunshot fractures; I am at least entitled to say they did not practise them; and yet, gentlemen who had not at that time lifted the knife will now complain of the attempt to anticipate their improvements. But I have the best testimonies around me: these specimens are not of yesterday; and the number and variety must prove to you how anxious I have been to take a correct and practical view of this matter." p. 38.

Now, the author is completely mistaken here in supposing, that the purulent matter alone in the medullary membrane causes necrosis. It is the inflammation of that membrane which is occasioned by the injury, and which terminates in suppuration, that causes death of the bone; and the utility of free incisions consists more in subduing the local inflammation, by the discharge of blood, and the diminution of tense swelling which it produces, than in evacuating any purulent matter.

From the subject of necrosis of the thigh-bone, the author passes to that of amputation at the hip-joint; and here his querulous indignation at the neglect with which his warnings and instructions have been received, exceeds all bounds; while his egotism and anxiety to prove that no subject in surgery has been unstudied, and no doubtful point undetermined by his research, serve only to show that Mr Bell has a nervous fear lest his pupils should question his diligence and judgment, or lest the profession should either not know, or not admit his various merits as an anatomical teacher, a pathological collector, and a practical surgeon. This we did not expect of Mr Bell, whose reputation in all these respects we regarded as too well established to require such superfluous and indirect support. The diligence and research, as well as the talent of the author, were generally acknowledged in our opinion, and could never become better known, or more appreciated, by such an appeal as the following.

"By hard study early in life, and by advantages which I believe no other person has enjoyed, I was enabled to come to conclusions upon some practical subjects, which are from time to time agitated up to the present day; and as the question comes round, my lectures seem applicable to the present new circumstances, although the expressions be the same which I have used for years. For example, speaking of the operation for lithotomy in the manner I have done for fifteen years, I am supposed to be making pointed objections to those gentlemen who have introduced the operation which is performed in Paris. When the army surgeons of the Peninsula returned home, they found me engaged delivering my old lecture, and imagined that it was addressed to them." pp. 39, 40.

But whatever reason Mr Bell may have for supposing this piece of information requisite to his pupils and readers, we do not think that the following method of disproving the propriety of amputation at the hip-joint, however graphic and dramatic, will be regarded as satisfactory or conclusive.

"There is a rule, which I would wish even now to controvert, but which I fear will still be acted upon, from a disposition to do bold and novel operations, rather than to weigh the importance of principles. Here is a bone which has been fractured by musket-shot; the bone you see has united, but necrosis has been the remote consequence. Amputation was here very properly performed, since suppuration was wasting the patient; but was there a necessity for operating at the hip-joint? On such occasions the surgeon introduces his probe, feels the bone carious, and amputates at the hip-joint. Yet, you see, there is no necrosis at the head and neck, or near the trochanters; and if he had amputated even at the very centre of the bone, he could have withdrawn the sequestra, and with it, all source of irritation from the stump."

"The mania for amputation at the hip-joint, which has of late years prevailed, I have seen finely exhibited in an individual, who, when the subject was mentioned, actually tore his hair, and exhibited the appearance of the deepest distress; one might have supposed that some of his dearest friends had fallen sacrifices to this operation; but no, the feeling was excited by his recollections being awakened, by the sight of a carious thigh-bone, of an opportunity of operating which he had lost." pp. 38–39.

"In 1809 I received a letter from an old pupil, telling me he was about to amputate at the hip-joint, giving me a description of the manner in which he meant to make his incisions, and asking my authority for it. I answered him in an abrupt and emphatic manner, that he must not be guilty of this folly, but amputate in the common manner, and if necessary withdraw the sequestra. I show you the bone (see plate V.) which he amputated; you see that the sequestra has not run up so high as where the bone is divided with the saw. I saved the patient then from the effects of a very dangerous operation, but I prevented the young surgeon from anticipating many gentlemen of great merit in doing this bold operation. In succession, year after year, occurred cases of operation at the hip-joint by

Mr Emery, Mr Brodie, Mr Guthrie, Mr Syme, and Sir Astley Cooper. My objections remain the same, substantially correct, but I seem, as the cases successively occur, to be criticising these gentlemen by a side-wind. Now a group of more respectable names cannot be placed together; and if to praise a man did not imply an assumed authority, I should say more of them; but at present I shall say only this, that all these authorities have no influence at all with me against the principles on which I object to the operation: my opinion decidedly is, that they are all wrong in amputating at the hip-joint for disease of the bone: for if the head of the bone be diseased in the joint within the capsule, then is it a hip-disease, and that alters the case altogether. If the head of the bone be shattered, then should the head of the bone be picked away. I shall not be so bold as to say, that there cannot arise a case for amputation at the hip-joint; but it is not fracture of the bone by musket-shot, nor necrosis of the bone, beginning in the centre of the diaphysis, that forms the case for hip-joint operation."

Now, we confess that we belong to that class of medical persons who think, that neither medicine nor surgery will be advanced by mere *a priori* propositions; and as the question of the expediency or propriety of the coxo-femoral amputation is by no means determined, we think it is very unfair to deprive those surgeons who think conscientiously and honestly that this operation affords in certain circumstances the only chance of life, of the means of bringing the question to the test of fair and open experiment. Unless the operation be tried, how can it be ascertained whether it is to be attended with benefit or destruction; whether it will prove a means of life, or a mere alternative of the manner of death? If such principles as those which Mr Bell appears to inculcate, be suffered to influence the surgeon, we should never have seen the carotid, or subclavian, or iliac artery tied, much less the abdominal aorta; we should not have seen the parotid gland extirpated; we should not have seen the Cæsarian section performed; and it is very uncertain indeed, whether, by parity of reason, the removal of an arm from the glenoid cavity, which has been performed with success, would not have been reprobated as a cruel and wanton dismemberment. We have not leisure at present to enter into the examination of the circumstances on which the coxo-femoral disarticulation is to be adopted or declined; but we are convinced that it would not be difficult to show, that it is not absolutely or essentially an improper operation, and that it becomes so only by circumstances of which the surgeon himself must ultimately judge. We should have gladly received a disquisition of this nature from the hands of Mr Charles Bell; and as his opportunities peculiarly qualify him for investigating every doubtful point in the inquiry, and showing by the phenomena of actual diseases or injuries, the cases to which the coxo-femoral amputation is applicable, and those in which it is inexpedient or unnecessary, we know that we are merely expressing the opinion of the profession when we say, that his observations would have been read with deep interest, and his practical precepts would have been received with great confidence.

Diastasis, or forcible separation of the epiphysis from the body of the bone, is the next subject on which Mr Bell enters; but it is chiefly for the purpose of telling his readers, that Sir Astley Cooper, by not taking anatomy as the ground-work of his observation, neglects the subject entirely. This is surely downright drivelling, and captiousness,—a sort of resolution to allow nothing to escape scrutiny and censure. With equal justice he might blame Sir Astley Cooper, because he neglected to notice such accidents as forcible detachment of the trochanters, longitudinal fissure or fracture of the bone, separation of the condyles, and every injury or disease of the thigh-bone, that ever occurred, or could be imagined. Mr Bell surely understands, that when a man writes a book, it does not follow that he is to treat of every thing in heaven, in earth, or beneath the earth,—or like the knowing Calchas, *ὃς ᾔδη τα τ' ἔοντα, τα τ' ἔσσομενα προ τ' ἔοντα*, who acted in the two-fold capacity of prophet and pilot to the Argive fleet, that he is to tell things that were, things that are, and things that will be. It is unreasonable to demand this scrupulous attention to every minute circumstance not very intimately connected with the subject under consideration, and quite hypercritical to censure as neglect a voluntary omission. But independent of the spirit of gratuitous and captious criticism betrayed by such observations, we humbly submit that the omission has the merit of extracting from Mr Bell the following facts not altogether without value.

"A child carried in arms, and throwing itself back in passion, whilst the maid holds it by the thighs, swings the whole weight of the body on the neck of the femur, and sometimes the head parts at the cartilage. There is lameness, and pain, and inflammation; but the case is difficult to be understood, for there is not the crepitus attending fracture, nor the distortion which characterizes dislocation. I have not met with an instance of this kind, but cases are on record. I hold in my hand, however, a specimen of diastasis of the lower head of the thigh-bone (see fig. 2, plate IV.). The lad, about thirteen years of age, had fallen through an open floor, and between the joists, so as to twist the leg, and the effect was supposed to be a fracture near the knee-joint. Suppuration took place in the joint, and by the delirious restlessness of the patient, and ulceration of the integuments, the bone was thrust through. A consultation was necessary, and on examination I found it was not a fracture, but that the spongy extremity of the diaphysis projected, whilst the epiphysis retained its connexion with the joint; the lad died. That such a case admits of reunion and cure, you may see by this other specimen, where the lower epiphysis is broken off, and reunited irregularly to the extremity of the shaft (fig. 3, plate IV.). This lad, when getting on the back of a gentleman's carriage, got his leg entangled in the spokes of the wheel, and the force was such as to twist off the epiphysis from the extremity of the diaphysis. His leg was amputated many years afterwards on account of an aneurism, occasioned by the projecting extremity of the shaft. pp. 41–42.

The subsequent remarks on fracture of the shaft of the thigh-bone, and its effects on the position of the limb, though tinged throughout with the same unfortunate spirit of animadversion, nevertheless possess more real merit, than those which precede them. They must indeed be familiar to all who know the mechanical qualities of an inflexible rod moved by active powers in various directions on a central point; and perhaps might have been contained in much smaller compass than in the pages before us, especially if divested of sundry irrelevant apostrophes and digressions, for which the author has an unhappy fondness. The essence or spirit of them may be stated shortly in the following terms. The thigh-bone moveable in the cotyloid cavity, may be regarded as a firm inflexible rod, ready to be acted on by the several muscles which pass between it and the bones of the pelvis, which necessarily move the whole length of the bone by levers shorter or longer, according to circumstances, so long as the firmness and continuity lasts. The moment, however, this continuity is by any means destroyed, the motions communicated to the bone by these muscles are greatly modified, in some instances annihilated. When, for example, the continuity is destroyed above by fracture of the neck, it is obvious that the whole cylinder of the bone is moved imperfectly, but without altering the position of the head and upper fragment of the neck,—the natural result of transferring the pivot from the head of the bone to the fractured end, where motion must further be difficult, and impeded in consequence of irregularity of surface. Again, when fracture takes place in the course of the shaft or cylinder, it is manifest that there are two pivots instead of one, and that the effect of the muscles will be various, according as they are connected with the upper or with the lower fragment. When the flexor muscles contract, instead of bending the whole bone steadily and uniformly forwards and upwards, they act chiefly on the upper fragment, the end of which is raised and carried upward, so as to form a palpable curvature in the direction of the bone.

" I now place before you, " says Mr Bell, " eighteen specimens of thigh bones fractured at the central portion : Of these, sixteen are distorted from the natural form in the same direction ; that is to say, the superior portion is drawn forward and upward, and the inferior relatively depressed (see plate VI. figs. 1, 2, 3, 4.) This should remind you, that there is in one sense no accident in this distortion : that the powers acting on the limb are in their operation as certain as the direction and insertion of the muscles are uniform. Had I shown you only one specimen, you would naturally have concluded that it was an accidental distortion. But you see, that it is a necessary result of the form of the bone and the operation of the muscles ; as in sleep the thighs are drawn up to the belly by the prevailing action of the psoas magnus and iliacus internus. In the erect posture, these muscles sustain the trunk upon the head of the thigh bone ; and when lying supine, the weight of the thigh counteracts them, and they are in some measure stretched ; but when the thigh bone is broken in the middle, or when it is cut through in amputation, the upper portion of the bone is immediately erected or drawn forward, and the surgeon's attention must be engaged not to depress the bone, for that produces excitement and spasm ; but to counteract its influence in another manner. " p. 43.

He then ascribes the projection and elevation of the stump, after amputation, to the same cause ; and inculcates strongly the necessity of raising the thigh during the sawing of the bone, in order to counteract, or rather to prevent, this spasmodic action of the flexor muscles of the thigh. We will say nothing of the observations on the double-inclined plane for treating fractures of the thigh, or for those of the leg, and leave the question of priority of invention to Mr Charles Bell, if he chooses, to determine in his own way. Neither shall we trouble our faculties in showing the error or inconvenience of laying fractures of the thigh-bone on such a machine ; as we are convinced that a judicious and attentive surgeon will trust more to his knowledge of the action of the muscles, and the effects they produce in individual cases of fracture, than to any general mechanical contrivance whatever.

The observations on the action of the *psoas magnus* and *iliacus internus*, during inflammation of the capsule, and dislocation upwards, are well founded, but must occur to every one that knows their effect, in bending the thigh forwards on the trunk. In another form of injury, when the head and neck are shattered, and the great trochanter broken off, as these muscles are no longer antagonized by those behind, and on the outer side of the bone (the *pyriformis*, *obturator externus et internus*, *glutaeus medius*, and *minimus*), the small trochanter, and with it the head of the bone, may be drawn inwards toward the groin, where it may simulate the dislocation forwards on the pubal bone, or obturator ligament. "But the true nature of this accident," says Mr Bell, "may be ascertained by feeling the great trochanter in its place, and observing the retraction and position of the limb."

The next subject of which Mr Charles Bell treats, is one of which we cannot feel in our hearts to speak either with levity or severity. Though it relates to that *quaestio vexata* of surgical pathology,—fracture of the neck of the thigh-bone within the capsule, and its union, it is intended as a vindication of the opinions and reasonings of the author's brother, Mr John Bell, formerly of this city. We cannot suppose the profession to be so ignorant of the writings of this ingenious surgeon, as not to know the opinions which he entertained on this form of fracture; and whether these opinions be known to the public in general or not, we have no intention at present of craving the attention of our readers to a disquisition so serious and lengthened as their communication would require. We neither pretend now to settle the question of originality between Mr John Bell and Sir Astley Cooper, nor to say how far the views of the former are just. Whatever be their merits or defects, their author was undoubtedly a man of genius; and, with much of the eccentricities attached to that character, certainly possessed many qualities which must endear his memory to a brother, and render every effort to cherish and protect that memory not only excusable, but amiable. We cannot therefore indulge in a single angry or censorious feeling, at the defence which Mr Charles Bell has thought requisite of the merit and originality of his brother; and as we adhere to the maxim *de mortuis nil nisi bonum*, we have no hesitation in admitting every word that our author advances, with this intention. At this distance of time, when the works of Mr John Bell have acquired all the celebrity and authority which can fall to their share, when his discourses on wounds, and especially his principles of surgery, have already obtained a sort of steady, tranquil reputation, as surgical authorities, and when the tomb has closed alike over the talents and the failings of their ingenious author, it would be at once idle and barbarous, to assume the tone of the strict and inexorable judge. It is not now that criticism can either encourage the efforts or correct the mistakes of the departed author; and we shall not be the first to violate the sacred repose of that sanctuary which the grave ought to secure to all.

We must not, however, omit the pathological views which our author takes of fracture of the neck of the thigh-bone. He first shows, that the conclusion, that the fractured knee-pan does not unite by bone, is unfounded; and next, that the ordinary opinions on the cause of imperfect union of the fractured neck of the thigh-bone, are incorrect. According to Mr Charles Bell, it is only when the knee-pan is broken by the sudden action of the *Quadriceps Extensor (Vastus Externus, Vastus Internus, Rectus and Cruraeus)*, that the pieces separate without that degree of violence necessary to cause union by bone; for, when it is broken by a direct blow, as the kick of a horse, not only is the retraction less, but the bloody effusion, swelling, and rigidity of the parts, resemble that which attends fracture of any other bone, and the fragments are united by osseous matter. The opinion, that the head and neck of the thigh-bone have not sufficient vascularity to assume the ossific action, he pronounces, at once, to be an idle theory; and contends, that those who maintain it, have neither proved that absorptive wasting of the bone is a process requiring less vascular activity than the secretion of bone,—nor inquired, whether the loose head, or the extremity, or both, undergo this wasting;—and above all, that they have never proved, that the bony union which occasionally takes place between the broken end and the socket of the *os innominatum*, requires less activity of vessels than its union to the extremity of the thigh-bone. Neither does our author admit want of apposition to be the cause of this imperfect restoration; and asserts, that though this be partly true, it is not the question at issue,—but why, in cases where apposition is complete, the head is connected to the broken end of the shaft by membranous matter only.

He then proceeds to assign what he conceives to be the true cause, in the following terms.

"The real cause is one which you can best understand who see the parts before you: if the bone be broken within this capsule, it is attended with an increase of colourless effusion into the joint, and the bones remain loose and subject to motion. But if the bone be broken external to the joint, the cellular connexions are torn, and there is bloody effusion; there follows this—inflammation and consolidation of the surrounding parts; the bones are sustained by this mass of inflamed matter; and in due time bone is formed in it, and that bone constitutes the medium of reunion." p. 60.

From this he deduces the following rule of practice.

"When you are by the bed-side of the patient who has fractured the neck of the thigh bone, you cannot decide with absolute certainty whether the bone be broken in such a manner as to unite or not. You are, therefore, to lay aside these questions, which are for the time so strenuously advocated, of fracture within or without the joint, and to proceed upon the supposition, that the bones may admit of reunion. The limb is to be laid on the double inclined plane, and a belt and compress is to be put round the pelvis, so as at once to offer some resistance to the rising of the trochanter, and press the broken surfaces together. But if it appear that after six weeks there is no reunion, nor such stiffness and swelling as forebode it, we must let the patient rise and use a crutch, lest the parts fall out of use and waste." pp. 60, 61.

The last subject of discussion is inflammation of the hip joint, and its effects on the limb, more especially consecutive dislocation. They are stated in the following manner.

"Whenever there is any, the slightest, degree of inflammation of the hip-joint, whether it proceed from an injury, or be a spontaneous and constitutional inflammation, there is an inclination of the pelvis on the head of the thigh-bone, as represented above, and the inclination of the trunk from the line of the thigh bone, increases in proportion to the degree of inflammation. At last the disease continuing, the affected leg and the trunk will form an angle of 45°, and the head of the femur will be thus raised upon the lip of the acetabulum, and prepared to start out of the socket altogether. Here, then, is the consecutive dislocation, a subject, strange to say, which this author never touches upon. Indeed, I do not know that any author has explained it: Mr John Bell did certainly not understand it, and this, perhaps, is one reason why Sir Astley Cooper has not treated of it.

"You know very well, gentlemen, that a ligament, to be firm, and white, and strong, must have only its natural degree of vascularity; but if it be inflamed, with its increase of vascularity, it becomes of a gray colour, and softer, and loses its power of resistance. This condition of the ligaments of the hip-joint permits dislocation, but does not cause it. It is the inclination of the body and the leg which throws out the head of the bone from the socket; and owing to the softening and yielding of the ligaments, there is no check or limit to the distortion, and thus dislocation is *consequent* upon injury." pp. 62-64.

After remarking the effect of this inclination in altering the apparent length of the limb, Mr Bell adverts to a passage of the work of Sir Astley Cooper, in which the latter mentions dislocations from ulceration of the ligaments, and destruction of the bones, and particularly, an instance in which the tibia was thrown on the inner side of the external condyle of the *os femoris.* This explanation does not satisfy Mr Bell; and, though he admits that Sir Astley has seen this form of dislocation, he contends that he has seen it to no purpose, and denies that he has drawn the right conclusion from what he has seen. It naturally occurs to ask, what is the right conclusion? and we forthwith find it given in the following manner.

"Those among you who go round the hospital with me, must have seen me touching the hamstring tendons of patients with inflamed knee-joints, and on these occasions we have seen that they are tense as the strings of an instrument: and often I have remarked to you that the inflammation of the joint was increasing or diminishing, judging from the degree of tension or relaxation of these tendons. It is level to the observation of the most careless looker-on, that the distortion of the bones is not consequent upon the disease of the ligaments, but upon a prevailing action in the posterior muscles, which first bend the knee, and at last pull the bones of the leg behind the condyles; the rectus being relieved by the rising of the thigh, or the bending forward of the body.

"Be you then, gentlemen, assured of this, that when you see an inclination of the body upon the head of the thigh-bone, you have an inflammation deep in the hip-joint to encounter; and that when your patient, with an injury in the knee-joint, has a tense corded feeling in the hamstring tendons, a formidable inflammation within the joint has commenced; and that you must employ every means to avoid destructive inflammation in the apparatus of the joint. If, on the contrary, you see a young woman with swelling and pain of the knee-joint, and do not find this position of the limb and tension of the hamstring tendons, then is the inflammation exterior to the joint, and the case is probably only the 'housemaid's knee.'" p. 66.

Now, this is certainly splitting a hair between its "north and north-west side;" for, in the *first* place, at the utmost, it is of little consequence whether the dislocation be said to succeed inflammation, as Mr Bell contends, or ulceration, as stated by Sir Astley Cooper; and, in the *second* place, if it must be conceded that the dislocation is a consequence of inflammation, it follows, that this inflammation must exist in the capsular and ligamentous apparatus of the joint, and that this is the primary cause of the action of the muscles, so strenuously maintained by our author. Though it be admitted, that dislocation of the articular extremities could not take place without muscular action, it is nevertheless manifest, that this muscular action never could displace them, unless the ligaments were in a morbid state.

The rest of the lecture is occupied with a good deal of desultory discussion on the same subject, and in a similar style; and the conclusion consists of an enumeration of the general subjects considered, an avowal of perfect immunity from any hostile feeling, hopes that the discussion shall be the source of no uneasiness to Sir Astley Cooper, and protestations of disinterestedness, unwearied zeal, and everlasting regard for the welfare of his pupils. Into such subjects it by no means comes within our plan to enter; and we should be loth indeed to occupy, either our pages or the time of our readers, with matters so little connected with their real interest. We have in our account of these Lectures, indulged in such remarks as were suggested by the peculiar manner in which Mr Bell has chosen to communicate his information; and it would be superfluous to repeat here any sweeping criticism of their general character. While we admit that the matter, whether pathological or surgical, is good and worthy of being studied, it is impossible to conceal the painful avowal, that it has been made to appear under most inauspicious circumstances. Had it been communicated separately, without allusion to Sir Astley Cooper, or at least without more allusion to his writings and opinions than was absolutely necessary to the elucidation intended by Mr Charles Bell, it is our intimate conviction, that Mr Bell would have produced not only a more instructive work, but one possessed of a great deal more real interest. With the exception of the immediate and devoted pupils of the two parties, we should wish to know, what interest the surgical world at large will take in the merely personal controversy, or what trouble the surgical practitioner will give himself about it, further than to study the mere facts adduced by Mr Charles Bell. These, it may be observed, are perfectly unconnected with the general tone of asperity and captiousness which pervades both Lectures, and which destroys most of the effect of the mere statements and reasonings. It is on this account, that the engravings and their explanations are really infinitely more valuable than the Lectures, and may be regarded as the most instructive part of the book. They show, that Mr Bell has collected numerous pointed examples of pathological facts, to illustrate several important questions in surgical pathology, and that he has used the discretion and judgment of a sound reasoner in drawing his general conclusions. And as they are only a very small specimen of the pathological treasures, which his diligence and zeal have accumulated, it cannot be doubted, that, if the ingenious proprietor would make a proper selection to illustrate every professional question, on which erroneous notions, either pathological or practical, are entertained, he would at once render more essential service to science, and more effectually convince the public of the extent of his attainments, and the correctness of his views, than by the publication of two score instead of two Lectures, either in defence of his own opinions, or in vindication of the memory of his brother.

It is needless for us to say, that we have ever entertained unfeigned respect for the character of Mr Charles Bell; and that his unwearied perseverance has called forth the gratitude and esteem of a large proportion of the profession, who, unbiassed by any feelings save those of love of science, and interest in the improvement of surgery, witness with pleasure research and diligence, by whomsoever they are displayed, which have this object in view. To such it is painful to see a person of the undoubted talents of Mr Bell, improved as they must be by the numerous opportunities of information to which he has long had access, spending his time in such performances as the two Lectures now before us. If he really think that his character as a public teacher demands the vindication which he has attempted, let it be confined to the walls of his own class-room, and to the ears of his pupils, (their minds we trust shall escape); but let him never think of requesting the attention of the public to that, to which they ought not to attend, or of endeavouring to awaken feelings, the display of which is always unnecessary, and often injudicious. When he appears before the profession at large, it would be at least prudent to choose a subject of general and lasting interest, and to shun in its discussion all topics which are indebted for attention to short-lived and personal controversy.

III.

Observations on the History and Treatment of the Ophthalmia accompanying the Secondary Forms of Lues Venerea; Illustrated by Cases. By THOMAS HEWSON, A. B., Member of the Royal College of Surgeons in Ireland; Professor of Materia Medica and Pharmacy to the College; and Surgeon to the Meath Hospital, and County of Dublin Infirmary, &c. &c. &c. London, 1824.

THIS is a practical work, which shows that the author has bestowed considerable attention on his subject, and which forms no inconsiderable addition to our knowledge of the several forms of inflammation incident to the human eye. Minuteness of description arising from attentive observation, correct pathological views, considerable refinement in diagnosis, and clearness in therapeutic precepts, are the great excellences of these observations; and our readers will be ready to say, that such recommendations are neither so trifling nor so common as to be overlooked. Yet the book is not free from faults; nor are these so few or insignificant as to warrant our adopting, with justice, the old saying, *Non ego paucis offendar maculis*; for, to omit the careless and inaccurate language in which the author has too often expressed himself, we have to regret the more substantial sin of loose reasoning and inaccurate thinking, or rather of no reasoning at all. The short compass of the whole book is pervaded, as we shall show, with a violent paralogism with regard to the nature of the disease which forms its subject—which the author assumes to be syphilitic or venereal; but without advancing arguments of any force to prove that it is, or to repel the objections of those, who, with equal justice, might ascribe it to mercurial poisoning. We mention this, however, merely as a caution at the outset of our remarks; and we shall, without further comment or stricture, proceed to give our readers some idea of the manner in which Mr Hewson treats his subject. We therefore take our author's description and mode of investigation as we find it.

According to Mr Hewson, when the syphilitic poison, after occupying the constitution, attacks the eye, it affects chiefly its internal tissues; and though, in consequence of the effects being most visible on the iris, the disease thus created is generally considered as inflammation of that membrane, it affects not only this but the choroid coat, the lens and its capsule, the ciliary body, and even the retina,—in short all the interior structures of the organ of vision; and therefore he regards it as a variety of internal ophthalmy (*ophthalmia interna*) produced by a specific poison, observing a peculiar course, and giving rise to peculiar effects.

This inflammation consists of two stages, the first of which presents at its commencement nothing peculiar, and begins very much like an ordinary attack of ophthalmy. There is perhaps a greater degree of aversion to light, exposure to which causes much pain, and a profuse discharge of burning tears, and the eyelids are in consequence generally violently contracted over the eyeball. There is always more or less of what Mr Hewson terms external inflammation, or vascular redness of the white of the eye; and if the enlarged vessels on which this appearance depends, be attentively examined, it is possible to distinguish two orders, a superficial belonging to the conjunctiva—the vessels of the mucous membrane—and a deep-seated pertaining to the sclerotic, sometimes bright red, more frequent of a purple colour, the characteristic peculiarity of which was long ago shown by John Cunningham Saunders to be, that they passed into, or were connected immediately with, the substance of the iris. This appearance is described by Mr Hewson in the following terms.

"A great part, however, of the redness of the eyeball is produced by vessels passing through the sclerotic, which becoming more numerous and frequent in their inosculations as they advance forward, and terminating abruptly, nearly at the space of a line from the cornea, about the situation of the ciliary ligament, cause in this part the peculiar appearance of almost a distinct red circle. Neither at this, or the more advanced periods of the disease, do these enlarged vessels pass over the surface of the cornea; nor have I ever observed any speck or ulcer forming on it: in a few instances there has been an appearance like the *arcus senilis.*" p. 5.

These characters may be said to indicate the existence of inflammation of the iris, which never continues long without producing marked changes in the aqueous humour, and in the appearance of the pupil, or central aperture.

"This humour," says Mr Hewson, "is always more or less clouded by an opaque fluid, which is generally seen floating in the anterior chamber. This prevents a clear view of the iris and pupil, and causes an appearance as if there was an opacity in the cornea. As to its nature, this opaque fluid would appear to be lymph, secreted by the vessels of the inflamed iris. It varies in quantity; it is sometimes so abundant as to render the greater part of the iris invisible; and, intercepting all passage of the rays of light, for a time entirely deprives the patient of vision. In some cases it scarcely disturbs the transparency of the aqueous humour; in others we see it condensed and collected into a mass, and attached to some part of the iris, generally near the pupil. Whilst in this state, in the more advanced stages of the disease, vessels shoot into it, and it becomes organized. It would seem to be specifically heavier than the aqueous humour, for it changes situation according to the position of the head. Thus, after the patient has lain some time in bed, it may be seen on either side of the anterior chamber; but when he is for any time in the erect posture, it accumulates chiefly about the lower part of the chamber and inferior margin of the pupil; also, as more or less of it always lies within the space of the pupil, it produces here an appearance like commencing cataract." pp. 6, 7.

We will not be so captious as to question the correctness of this opinion about the formation of lymph, as the cause of muddiness of the aqueous humour during iritic inflammation, although our author adduces no fact in proof of its truth, and although the possibility of proving his opinion be exceedingly problematical. Mr Saunders remarked the effusion of lymph from the inflamed iris, but it was always in definite drops or masses aggregated together, and not diffused through the aqueous humour, as Mr Hewson imagines it to be. If this notion of our author be erroneous, the error is to be ascribed to the peculiar opinions which pathologists entertain of lymph, and of the inflamed membranes by which it is effused. There are two circumstances to which it is requisite to give attention, in order to form a correct idea of the point at issue. The first is, that inflammation of a membrane, such as the iris or the choroid coat, does not invariably cause the formation of lymph; the second is, that lymph is not directly effused *in propria forma*, but is separated by a subsequent process from the fluid which is the product of inflammation.

If we inquire into the nature of the tissue of which the iris consists, we find it impossible to form any very definite notion of its structure or organic properties. It is utterly unlike any other substance, either solid or membranous, in the whole animal body. The longitudinal fibres which are seen in the anterior surface of the recent eye, were regarded as muscular by Drelincourt and Ruysch, and a multitude of authors who followed these anatomists. Morgagni, on the other hand, declares that he never could, even with the aid of a lens, distinguish muscular fibres; a conclusion in which he was afterwards supported by Duvernois and Weitbrecht, by Ferrein, who considered the iris as a mere vascular membrane, more recently by the accurate Haller, who ascribes the dilatation and contraction of the pupil to the more or less impetuous afflux of fluids to its colourless vessels, and even by Zinn, who, though he thinks it ought to be referred to muscular tissues by its action and properties, admits that he never could distinguish muscular fibres even by the microscope.

All authors who have investigated the structure of the iris, agree in representing it as a very vascular membrane, and that its principal structure consists of numerous arteries and veins, and a copious supply of minute nerves from the small branches of the ciliary order. These fibres, capillary vessels and nerves, are connected with each other by means of a very delicate filamentous tissue *(subtilissima cellulositas)*, as in other organs; but what peculiarly constitutes and distinguishes the membrane from others, the most elaborate anatomists have failed to inform us; and we must confess that we are unable, in the present state of scientific materials, to determine. It is therefore entirely uncertain, whether it can be justly referred to the order of serous membranes, as some authors have thought; and nothing is known either of the analogies according to which morbific causes operate on it, or of the pathological effects which its structure would show peculiarly to result from its inflammation.

From these facts, therefore, it is to be inferred, that knowledge of its anatomical structure throws little or no light either on the process of inflammation, or on the peculiar effects which it produces; and it must be admitted, as a simple ultimate fact, that the iris, when inflamed, may secrete fluid which coagulates into lymph, but that it does so, not in consequence of being a serous membrane, to which it is very doubtful if it bear any resemblance. It must not, however, be imagined that the iris secretes lymph indiscriminately at any part of its surface; for invariably this morbid production is found at the pupillary margin, which it almost uniformly renders more or less irregular, and too often connects by adhesion to the capsule of the lens.

According to these views, the muddy appearance of the aqueous humour is not explained by merely having recourse to the supposition of the presence of coagulable lymph; and, in point of fact, inflammation may exist in the membrane without giving rise to this morbid production. Without attempting to determine specifically in which of the component tissues of the iris inflammation exists, we may safely assert, that one of its most common effects is derangement of its usual secretion, and the formation of a quantity of morbid watery fluid. We see examples of this in inflammation of the skin, as in blisters, rose, pemphigus, and some of the vesicular diseases, in inflammation of the cellular tissue as in œdema, and in inflammations of several of the serous membranes, as in effusion of watery fluid in consequence of pleurisy, pericardial or peritoneal inflammation, and, in some instances, of hydrocele. Very nearly on the same principle may turbidity of the aqueous humour be ascribed to inflammation of the iris, or perhaps of the ciliary body and processes. The exact sources of the aqueous humour are not positively known. To pass over the opinions of Nuck, which were refuted by Chrouet and Haller, it appears to be generally agreed that it is derived chiefly from arterial extremities, which some, as La Hove, de la Charriere, Lobé and Hevermann, place in the anterior surface of the membrane, but which others, as Haller and Zinn, think are none else but the arteries of the ciliary processes. If this probability be connected with the fact of the direct passage of a zone of vessels from the sclerotic to the ciliary ligament and processes, as first noticed by Saunders, and now particularly remarked by Mr Hewson in the work before us, we obtain a clearer view of the pathological cause of the muddy state of the aqueous humour. If it be admitted that inflammation, or any vehement vascular irritation, has the effect of deranging those secretions which depend on direct capillary action, it is natural to expect that inflammation, which affects the ciliary body and perhaps the processes, will have considerable influence in changing the aqueous humour, the transparency of which is intimately connected with the healthy state of the ciliary arteries.

Bichat describes a proper membrane of the aqueous humour, which, according to him, covers the posterior surface of the cornea, and, advancing to the great circle or ciliary margin of the iris, covers it before, and is insensibly lost before it reaches the pupil. He expresses no doubt that this membrane furnishes the aqueous humour, by exhalation, though he admits that it resembles the serous membranes in nothing but its transparency. The existence of this membrane, however, is by no means ascertained; for the ingenious author admits, that it is demonstrated in the form of a thin plate behind the cornea with great difficulty, by exposing the eye to the heat of boiling water; and that no contrivance has yet rendered it perceptible on the iris. Here is, therefore, no proof that there is a proper membrane of the aqueous humour, further than what is derived from conjectural analogy; and we must, in the mean time, be satisfied with the old hypothesis, which ascribes the formation of this pellucid fluid to the ciliary arteries.

We have been led into this digression in order to prepare our readers for understanding the descriptions of Mr Hewson, and to enable them to estimate the truth of some of his pathological opinions. It appears, on the whole, to ourselves, that the muddiness of the aqueous humour is to be regarded simply as one of the effects of inflammation, spreading from the ciliary body over the iris before, and the processes behind, and that it is quite unnecessary to have recourse to the effusion of lymph to explain this loss of transparency. Effusion of lymph may take place, but it is a distinct process entirely.

Mr Hewson also notices, that instead of lymph, drops of blood may fill the anterior chamber; yet the symptom, though alarming, is without danger. The formation of purulent fluid constituting *hypopion*, though more formidable, is much less common, according to Mr Hewson.

The changes which take place in the shape of the pupil, are so various in different cases, that it is almost impossible to describe them in general terms.

"In a few cases, it remains for some time preternaturally dilated and fixed like an amaurotic eye; but in general it is rather within the middle state of expansion, and remains nearly immovable in every variation of light; so that, while comparing it with the pupil of the other eye, it at one time appears more dilated, and at another more contracted, according to the greater or less intensity of light to which they are both exposed. As the disease advances, the pupil contracts, and soon begins to lose its regular circular form; some part of its margin is observed to make a different curve from its original one, and at first to assume more of a straight line. This may take place in one or more parts of the margin, and for a greater or less extent, which will cause the pupil to take on different figures: sometimes appearing semilunar, at other times oval, triangular, or quadrilateral. Some portion of the pupil, mostly about its superior part, preserves, in all stages, for a greater or less extent, its natural form; and within this space, it moves a little under the influence of varying light, and also expands under that of the extract of belladonna; whilst the remaining portion is not affected by the same agents. We usually find a larger accumulation of lymph about the latter parts."

" As the disease proceeds, the contraction of the pupil becomes more remarkable, particularly about where the morbid action first manifested itself; and thus while one part of its border is closing towards the centre, and the other remains stationary or dilated, it consequently, sometimes appears as if drawn out of the natural axis. "—pp. 8–11.

In some instances, minute eminences like pustules appear about the pupillary edge of the iris; but they are more common in the second stage of the disease. The duration of these symptoms is from six to eighteen days, and it rarely happens that the twentieth arrives, without some of those which belong to the second stage appearing.

These consist merely in the greater contraction of the pupil, its irregular puckered appearance, attached in one or more points to the capsule, and, above all, in the formation of the pustules or tubercles already mentioned on the iris, but chiefly its pupillary margin. They are described in the work before us in the following terms.

" When these occur, there is always more pain and tenderness felt in the eyeball than usual; they commonly present themselves at or near the pupil, and on that part of it where the morbid process is most active; now and then they are seen on the surface of the iris, between the pupil and its ciliary attachment. They are found from the size of a large pin-head to that of a small split pea; sometimes a solitary one, at others two or more of them apppear unconnected; but in some cases a number are clustered together, and project into the pupillary space, so as nearly to fill it up, or protrude forward into the anterior chamber. At one time they hang pendulous, at another they are attached by a broad base: when small, they are of a dark red colour; but when large and prominent, they are more or less white at the apex, while about the base the redness continues. By closely examining them in this latter state, we distinctly observe that the inflamed superficial membrane of the iris is reflected over them, and forms their anterior covering; and thus, when these tubercles are small, their covering retains the redness caused by its state of inflammation; but when they are larger and more pointed, it becomes transparent about the apex, where, as happens in a common pustule, their whitish contents are visible.

While in this state, in some rare cases, the tubercle bursts, and its purulent contents are poured into the anterior chamber, thus giving rise to the symptom called *hypopion*, so common in idiopathic internal ophthalmia. The different circumstances, however, I may here shortly remark, under which this symptom occurs in these respective species of ophthalmia, are, with a litte attention, sufficiently manifest; for, in the venereal case, we clearly observe that the matter is deposited into the anterior chamber from the pustular tubercle, which is previously formed and always present; whereas, in the latter instance, we cannot distinguish from what direct source it is produced.

" After the disappearance of these tubercles, we may often discover a fissure or cicatrix in that part of the iris where they have been situated. With regard to their nature, from what I have observed of them, I would conclude that they are either pustular, or for the most part formed of a purulent deposition. Having never found them attendant on any other kind of inflammation or morbid action, I have always looked on them as characteristic of venereal ophthalmia." pp. 13–16.

As most of the symptoms hitherto mentioned are visible in the iris on simple inspection, the disease has been generally considered as inflammation of that membrane chiefly. Mr Hewson, however, very reasonably conjectures that it is not confined within such narrow limits, but affects the choroid coat and retina.

" Indeed, we rarely find," he remarks, " any morbid action set up in the iris, where the deeper-seated coats do not, at the same time, manifest some symptoms of being affected; and in the disease we are now considering, it has already been observed, that defective vision, and intolerance of light, are among the earliest symptoms complained of. These symptoms also occur before any marked or decided signs of disease appear about the iris and pupil, or before we can discover any sufficiently apparent causes, to account for their existence. They continue unabated, or rather increasing, whilst any degree of the morbid action is going on, but in a great measure subside on its removal. We shall, therefore, be often surprised at the extent of useful vision, to which, under proper treatment, the patient is restored, though some of the effects of the disease which we might suppose most likely to interrupt it, such as an adherent and contracted pupil, and opaque capsule, remain nearly unaltered and permanent.

" From these observations, and others which will appear on a closer investigation, we may infer, that the morbid action attendant on the venereal ophthalmia is not confined to the iris, as some have supposed, but that the choroid coat and retina are to a greater or less degree involved in it." pp. 17, 18.

This internal inflammation, then, may either be confined to one eye, or, after affecting one, may attack the other, where it may follow nearly the same course which we have already traced. Its natural tendency is to produce closure of the pupil, opaque capsule, or such opacity of the choroid coat or retina as to impair, or even destroy vision entirely; and wherever it is not opposed by seasonable and energetic treatment, more or fewer of these effects are generally observed to result. In some cases, which are luckily not very common, a more formidable termination,—abscess, and suppurative destruction of the whole organ, take place.

"The first symptoms," says the author, "which indicate a tendency to this, are some degree of œdema and swelling on the forepart, and on one side of the eyeball, immediately behind the ciliary attachment of the iris. At this place, a distinct tumour soon forms, which in a few days becomes pointed, and white and soft at the apex; when opened, the matter it contains oozes but slowly from the orifice, and will be found darker in colour, and more thick and tenacious in consistence than common pus.

"While the abscess is thus making its way externally, we at the same time observe it pointing towards the anterior chamber. A contiguous portion of the iris is protruded forwards, so as to come nearly in contact with the cornea: this soon gives way; and the same kind of tenacious matter which appears at the external opening is seen deposited in flakes into the anterior chamber, but does not subside in, or mix with, the aqueous humour, as happens in common hypopion. Both iris and cornea are quickly destroyed by sloughing and ulceration, the aqueous humour, lens, and a part of the vitreous humour, are evacuated, the sclerotic contracts about the vacant space, and, finally, the anterior chamber is obliterated.

"Cases of the kind here described are fortunately not common. One instance is noticed, and two figures are given of an eye thus affected, in Mr Saunders's posthumous work, without, however, any of the particulars of the case being added. Another is stated by Dr Farre, in a communication to Mr Travers, and three have fallen under my own observation, from which the above description has been drawn." pp. 20, 21.

This inflammatory process, though in some instances it gives rise to trifling uneasiness, is generally attended with periodical paroxysms of acute pain about the ball of the eye, the orbit, cheek, temple, or one side of the head, not much unlike intermitting *hemicrania*. The time of attack is generally towards evening, during night, or in the early part of the morning; and during the paroxysm, which may last for two or three hours, there is a copious flow of scalding tears, the countenance is flushed, and the pulse quick and hard.

Mr Hewson commences his account of the constitutional symptoms by observing, that the eye is susceptible of this disease only when syphilis has advanced to its secondary stages, and contaminated the system in some degree; for, though a half-cured, indolent chancre or bubo may be present, some degree of constitutional affection is necessary to its production. According to the experience of Mr Hewson, the ophthalmic inflammation is most severe where the secondary syphilitic symptoms are most distinct, where no mercury has been used, or where the administration of this mineral has been irregular, inefficient, or protracted; but milder and more indolent where mercury has been employed, and especially with an alterative effect.

The secondary symptoms which are most frequently observed to accompany the disease, are cutaneous eruptions, scaly or papular, bone-ach, depending on inflammation of the medullary membrane, node or periosteal inflammation, pains about the joints, and very generally ulcers or sloughing of the soft palate and tonsils.

"If the skin is free from any symptom to which we can attach suspicion, we are next to examine into the state of the throat, which is very frequently affected at the same time with the eye. We shall here often find one or more ulcers, or a greater or less degree of excoriation, or irritation, either actually present with, or immediately preceding, the ophthalmia; and in some instances the transition of the disease from the throat to the eye has been remarkably rapid, a day or two only intervening between its disappearance from one, and its seizing on the other. As the symptoms about the throat are often of an extremely dubious character, we can seldom solely rest our judgment on them; but must, as has been observed above, take our view of the case from an inquiry into the other circumstances attending it." pp. 27, 28.

We may add, that we have seen several examples of the internal ophthalmic, or iritic inflammation, in persons affected not only with papular or scaly, but with pustular and tubercular eruptions. Some varieties of one or other of the latter, especially the hard phlyzacious pustule (*rupia* and *ecthyma*), give rise to those ulcers, blotches, or morbid *cicatrices*, which Mr Hewson has remarked among the constitutional signs; but it is very doubtful, indeed, whether they are to be ascribed to the pure and unsophisticated action of the syphilitic poison or not.

It may readily be supposed, that this internal ophthalmy is very liable to be confounded with other forms of ophthalmic inflammation; and, indeed, it is doubtful in our mind, how far it is practicable to distinguish it from inflammation of the same parts occurring spontaneously, or from other causes than absorption of the syphilitic poison. Difficult, however, as this task unquestionably is, our author has essayed it, and furnishes his reader with diagnostic marks to distinguish the venereal ophthalmia from idiopathic inflammation of the iris, from inflammation of the capsule of the aqueous humour, and from rheumatic, arthritic, and mercurial ophthalmy. These marks, as might be expected, are derived, not so much from the symptoms and pathological characters of the several affections, as from the history of their course, and the influence which is exercised over them by various external agents. But, even with this allowance, the difficulty of establishing a real difference between venereal ophthalmia and idiopathic or other inflammations of the iris, appears to be extreme. Our readers may take the following diagnosis of idiopathic iritic inflammation as an example of this.

"1st. It does not so very quickly disorganize the structure, or disturb the functions of parts it attacks; and it is often for months' duration, sometimes subsiding, or almost entirely disappearing; and again, after certain intervals, returning, without leaving any permanent injury.

"2d. We shall rarely observe (indeed I have never met such a case) that it produces the same kind of pustular tubercles on the iris, and about the pupil, which have been mentioned as frequently appearing in the venereal ophthalmia.

"3d. After it has subsisted for a long time, it frequently causes organic changes in the iris, choroid, retina, and in the vitreous humour, and terminates in amaurosis, sometimes with an adherent and contracted pupil; in others this is dilated; and in these cases, it is not unusual to observe, in the same individual, one pupil amaurotically expanded, and the other closed.

"Finally, mercury alone is not so active, or so certain in subduing idiopathic inflammation of these parts, as some writers suppose; whilst the means necessary to resort to for this purpose, and which most frequently succeed, are totally useless in the venereal ophthalmia." pp. 34, 35.

Whoever peruses these paragraphs will unquestionably imagine, that, with the exception of the appearance of pustules or tubercles on the iris, all the symptoms indicate merely a shade or slight difference of degree, and that idiopathic inflammation of the iris is only a little more indolent than that which our author represents to succeed the absorption of the venereal poison. Yet we have only to look at the very next member in order to find an admission, that even these marks, slight as they are, are insufficient to assure the practitioner of the peculiar nature of the disease, without accurate inquiries into its history, and watchful examination of its subsequent course.

"Though many other points of difference," says Mr Hewson without the slightest reason, "might be adduced, and will readily occur to an attentive and experienced observer, *no reliance whatever should be placed on lines of distinction drawn from topical appearances alone;* but in all cases, the state of the patient's general health, both previous to, and after the occurrence of any ophthalmic symptoms of the nature we are now considering, should be closely and minutely inquired into. The necessity for this never more forcibly struck me than in some cases that appeared as the sequelæ of the typhus fever which, a few years ago, spread so widely and so fatally throughout this country, and which still, though to a more limited extent, continues its ravages amongst us." pp. 35, 36.

The author then goes on to inform us, that in the autumn of 1815, when contagious fever prevailed to an unusual extent among the poor inhabitants of that part of Dublin, in which the Meath Hospital is situate, many suffered from ophthalmic inflammation, with such symptoms as induced Mr Hewson to suspect a venereal taint, and interrogate his patients as to its truth. Finding his suspicion unfounded, he ascertained, by subsequent investigation, that during convalescence from fever, and even long before this period, the internal coats of the eye became remarkably susceptible of inflammation, which was further called into action by premature exposure to cold, or unguarded application of cold or moisture to the person. For several successive years this ophthalmy continued to accompany the fever, and unless treated as the seat and nature of the disease demanded, it was liable to produce the same injury to the structure of the eye. Five examples of this disease are given at the conclusion of the work; and no one, we are satisfied, who regards the symptoms merely, and the appearances of the iris and aqueous humour, will find it possible to distinguish it from that which occurs, or is said to occur in the persons of those who are affected with the secondary symptoms of the venereal disease. Under these circumstances, it is manifest, that the attempt to establish a distinction is gratuitous, if not useless and idle; and although a difference between the two diseases may actually exist, our author has completely failed in establishing it, or in giving us decisive marks of its existence.

These observations naturally lead to an inquiry of a very difficult nature, and in which our author under the head of "ophthalmic symptoms caused by mercury," has contrived partly to evade the doubtful points, partly to meet them by assumed principles, or broad assertions. He remarks, in the first place, the urgent necessity and the unequalled difficulty of drawing clear lines of distinction, between those symptoms which have their origin in syphilis, and those which result from the morbid action of mercury; laments the prevalence of vague and unsettled opinions on the subject; and disapproving of the ambiguous manner in which Mr Travers has spoken of the difficulty, expresses his doubts, whether the statements of this writer are altogether borne out by facts.

"It is not," says our author, "because a majority of the cases of iritis met with "are consequent on the use of mercury," nor yet because they sometimes occur "while the system is charged with mercury," that we are authorized in concluding one to be the specific effect of the other; for we might with equal reason assign mercury as the cause of the greater number of constitutional symptoms generally acknowledged to be syphilitic, the cases in which they appear being commonly found under similar circumstances. A more obvious, and, in my mind, a truer source of the cases in question, may generally be traced to a defective and inadequate mode of administering mercury; in consequence of which, besides other effects, it fails to exert its antisyphilitic properties, or to eradicate the disease from the constitution; and, during its exhibition in this way, and while the system is yet under its influence, we frequently find syphilitic symptoms appearing in succession, or retiring from one place, and breaking out in another, and often committing some of their severest ravages. This is no uncommon result of what is termed the alterative plan of treatment, which is confined to the administration of pills, and in which the patient is placed under no salutary restrictions; and ophthalmia, like other syphilitic symptoms (as will appear from a perusal of many of the cases subsequently detailed), is no very unfrequent consequence of it. A minute investigation, however, into an extensive variety of cases, which came under my observation while acting for some years as surgeon in the Lock Hospital of this city (perhaps at the time the largest establishment of the kind in Europe), not alone impressed me with the opinion that iritis occurring under the circumstances above stated is, with very few exceptions, connected with a syphilitic taint of the constitution, but also that the ophthalmic symptoms usually associated with the "constitutional use" of mercury, are of a very distinct and different nature from the disease in question. Indeed, my experience leads me to look on primary iritis as a very rare effect of the constitutional use of mercury. On the contrary, I have observed the external structures remarkably subject to be morbidly affected by it, and this without its manifesting any tendency of the same kind elsewhere." pp. 46–48.

Now, it cannot be denied, that mercury does in many constitutions give rise to a train of symptoms, so similar to the secondary effects of syphilis, that they were long mistaken for those effects, and still continue by many practitioners to be ascribed to the inveterate grasp of the venereal poison. It is certainly a curious enough coincidence, that a morbid animal poison and mineral substance which often acts as a poison, should at the same time, in certain constitutions antagonize each other; and also, when absorbed into the constitution, give rise to the same or very similar pathological effects in the same animal tissues. The syphilitic poison when taken into the circulation, may produce cutaneous eruptions, papular, scaly, pustular, and tubercular; it may produce ulceration of the soft palate, inflammation of the fibro-mucous membranes, bone-ache, inflammation of the periosteum, &c.; and mercury will in many persons be followed by exactly the same effects. Nor do we think that the explanation which our author offers of these effects, which he ascribes to a *defective and inadequate mode of administering the remedy, so that it fails to exert its antisyphilitic properties,* will furnish a solution of the problem. For it is well known, that no efficiency of exhibition, either by repetition or completeness of mercurialism, will counteract the occurrence of such symptoms; nay, too often they are aggravated and rendered utterly unmanageable in consequence of such effectual and adequate administration. That the effects cannot with greater justice be ascribed to what is termed *the alterative plan,* may be inferred from the fact, that bad effects less frequently follow this, than any other mode of administering mercury.

These observations apply chiefly to those doubtful points relating to the appearance of general symptoms, occurring secondarily in persons who have been exposed to the poison of syphilis, and who have also been under the influence of mercury. The great point which particularly claims inquiry at present is, *first,* whether the syphilitic poison alone would produce iritic inflammation; *secondly,* whether there are grounds to believe that mercury, or mercurial poisoning, operates as a cause of iritic or internal ophthalmic inflammation; and *thirdly,* whether there are just grounds for distinguishing the disease which attacks the eyes of those who labour under the secondary symptoms of syphilis, from those which is the result of mercurial poisoning.

On the first of these questions, we believe it would be idle indeed to entertain any doubt; for, under certain circumstances, the eyes of persons affected constitutionally with the venereal poison, are particularly liable to internal inflammation. It is true, that few even affected with chancre, or a trifling excoriation, fail to have recourse to the popular remedy; and we very rarely, in civil practice, meet with patients who have passed through all the stages of the disease, and who show its entire course unmodified by any disturbing force, unsophisticated by any deranging agent. It is only, therefore, in those whose delicacy prevent them from applying for advice, or whose carelessness lead them to neglect even the means within their reach, that this simplicity of disease is observed. Mr Hewson remarks, what most practitioners are aware of, that the greater number of females who are infected by their husbands, rarely use mercury till the disease appears in the constitutional form, and these are very frequent subjects of ophthalmy; and he states it also to be common among the lower orders of the Irish peasantry, who, when disordered, are notoriously negligent in resorting to the necessary treatment till some of the secondary symptoms appear. These facts are so well established, that it would be uncandid to deny them; but we cannot bring our minds to the tone which Mr Hewson assumes, when he tells us, with a sort of triumphant sneer, that, among the anti-mercurial experiments of our military surgeons, *iritis* has been no uncommon occurrence; and that, in some unpublished official reports, with an examination of which he had been favoured, he found it expressly stated, that "iritis was more frequently observed as a secondary symptom than is known to happen after treatment with mercury." Now, we will not attempt to say what these reports may be, nor shall we call for their production, as Mr Joseph Hume would probably do; but we may be permitted to remark, that we have not only seen various official reports, published and unpublished, but have seen the treatment, or "the anti-mercurial experiments," as Mr Hewson terms them, of various military surgeons, in various hospitals, and the result was uniformly, though in various degrees, the reverse of what Mr Hewson has here recorded. We have seen very few examples indeed of secondary symptoms of any kind, where mercury was not exhibited, and not above one or two unequivocal cases of iritic or internal ophthalmic inflammation. In civil practice, we have had occasion to employ the non-mercurial or simple plan of treatment, both publicly and privately, and have seen only one or two cases in the former situation, where the patients were careless and indifferent about their habits of living, and exposure to weather. In short, though the occurrence of internal ophthalmic inflammation in venereal cases treated without mercury, is not to be regarded as impossible, our observations lead us to infer, that it is an infinitely rarer occurrence than where mercury has been administered.

But while we are thus disposed to modify the statements of our author, candour obliges us to confess, that iritic inflammation may occur in the persons of the diseased; and perhaps the frequency and the liability of its occurrence depend on the operation of the same causes which favour the production of secondary symptoms in general. Cold and moisture affect the throat, perhaps the greater part of the gastro-pulmonary mucous membrane, in such patients, more readily than those in health; and one of the natural tendencies, if not a solution, of this local affection, is an eruption on the skin; and very frequently in those otherwise predisposed, inflammation of the eye. Of twenty-five cases which Mr Hewson has detailed of iritic inflammation, in ten patients the disease appears to have reached the secondary stage, and given rise to eruptions, or bone-ach or pains, without the evidence of any mercury having been taken. The following Table will communicate to the reader some idea both of their primary and secondary symptoms, the latter of which were in general present while the iritic inflammation was going on.

Cases of Persons affected by Iritic Inflammation, who are reported not to have taken Mercury.

Names.	Age.	Primary Sores.	Secondary Affections.
Fanny Murphy	24	Sores and bubo.	Eruption, pains, night-sweats.
Mary Goulding	27	Sore on the nipple.	Eruption, headach, pains, night-sweats.
Sarah Logan	36	Disordered by her husband.	No apparent symptom.
Catharine Matron	30	Disordered by her husband.	No syphilitic symptom.
Matthew Gibson	24	Chancres, which healed spontaneously.	Eruption, headach, pains, stiff limbs and night-sweats.
Ann Whelan	20	Neglected sores.	Eruption, pains, night-sweats.
Margaret Connor	27	Disordered by her husband.	Pain in one side of head; no other symptom.
Mary Harte	40	Disordered by her husband.	Pains of shoulders and other joints, night-sweats.
Henry Smith	40	Chancre and bubo.	Eruption, pains of legs, arms, and joints.
Michael Flood	6	Supposed to be congenital.	Nodes on both tibiæ, night-fever and sweats.

In five of these cases, there were eruptions, pains of the joints, and night fever, terminating in sweating; in two there was no apparent syphilitic symptom, save iritic inflammation; in one there was none, save hemicranial headach; in one, pains of the shoulders, elbows, knees, and joints in general, with night-fever, were the only secondary symptoms; and in one, a boy of six, in whom the disease was believed to have been transmitted from his parents, to these symptoms nodes on the tibiæ were added. In admitting these cases as evidence of the position so strenuously maintained by our author, it must not escape notice, that we credit their authenticity and correctness on his testimony only, and on the accuracy with which he has investigated and ascertained their history. If it appear, on further inquiry, that mercury has been taken by any of the patients of this list, their evidence falls to the ground entirely.

The second point in this inquiry,—the possibility of mercury creating a disposition to iritic inflammation, or, in other words, operating as a cause of the disease, has partly come under notice already, in the few observations which led to this discussion. Mr Hewson, as we have seen, is of opinion, that mercury possesses no injurious power of this kind, and states, in opposition to what Mr Travers had inferred, that its constitutional operation rather diminishes than increases the susceptibility to the disease; and he subsequently has recourse, as we have seen, to the supposition of a defective and adequate mode of administration, to account for those cases of iritic inflammation, which occur in the persons of the diseased who have taken the mineral. It is quite unnecessary to inquire into the reasons, on the strength of which Mr Hewson maintains this opinion, for in truth he assigns none; and is ready to meet every objection, by quoting experience and observation. Unfortunately, however, for the effect of this mode of reasoning, the book itself furnishes means of appreciating the weight which should be given to general assertions, formed either on speculative and dogmatic principles, or without due attention to all the points of a question of fact. Mr Hewson makes his readers believe, from the outset of his observations, that he treats of ophthalmic inflammation consequent on absorption of the venereal poison only; and he all along speaks of the disease as the genuine product of the syphilitic poison. This view of the origin of iritic inflammation would be perfectly correct and consistent with facts, providing Mr Hewson formed his opinion of the disease from subjects in whom the syphilitic poison had been suffered to pass through all its stages, and produce all its effects, without the intermixture of that source of fallacy which results from the administration of mercury. It would be perfectly reasonable and legitimate to ascribe the internal ophthalmia to the operation of the morbid animal poison, if it did not appear that, in the majority of cases of the disease, another agent, which is well known to be adequate to its production, had been allowed to operate.

This error of logic is, however, amply compensated by the extreme candour of Mr Hewson in laying before his readers, not cases only in which no mercury had been given, but several in which a very full and complete dose of this mineral had been administered. Of the twenty-five cases recorded in the Appendix, not fewer than fifteen are instances of persons who had used the remedy in one form or other; in many it had been used more than once; and in one or two (Mr J. C. and Ann Moore) it had been given in great quantity, and in general with marked effects. That our readers may have a satisfactory view of the evidence furnished by these cases, we submit them, digested in a tabular form, collected as they are from the reports of the author; and we think it will require either great ingenuity, or great effrontery, to maintain that they do not furnish strong presumptive evidence that the iritic inflammation, if not the consequence of mercurialism, was at least as likely to arise from this cause as from the constitutional effects of the syphilitic poison.

Names of Persons.	*Age.*	*Primary Symptoms.*	*Remedies.*	*Interval between Prim. and Sec. Symptoms.*	*Secondary Symptoms.*
1. John Woods	32	Repeated venereal infections.	Pills and washes.		
2. John Kearney	37	Chancres, bubo.	Pills till mouth became sore.	7 months	Copper spots on forehead, shoulders, and arms, ulcers of tonsils.
3. John Lyons	67	Venereal symptoms some years ago.	A course of mercury.	years	Painful sores difficult to heal, leaving bad cicatrices.
8. William Dobbs	26	Chancres and bubo.	Pills and sore mouth.	7 months	Purple-papular eruption, night-pains, sweats, and weak limbs.
9. Mr J. W.		Chancre and bubo.	Three inunctions, very sore mouth.	6 months	Headach, pain of limbs, night-sweats, bone-ach, ulcer of tonsils.
10. William Burges	20	Fungous warty sore on penis, and similar ones on scrotum, &c.	Twelve pills.	7 months	Iritis only.
11. Mr J. C.		Excoriation on glans and inner surface of foreskin.	Some pills, afterwards great quantities of mercury, and pills again.	8–10 months	Pains, eruption, *ecthyma syphilitica.*
12. William Church	24	Chancres, succeeded by bubo.	A wash given by a quack, and afterwards some pills.	1–3 years	Pains and stiffening of limbs, night-sweats, eruption afterwards.
13. Francis Brennan	45	Chancres about 2 years before.	A few pills.	2 years	Pains of temples, thighs, and knees, night-sweats, copper patches on arms, body, and legs.
15. Sally M'Kean	28	Sores of the nipple.	A liquid medicine given by a quack;—corrosive sublimate?	6 months	Sore throat and eruptions.
18. Anne Carey	30	Chancres and bubo.	Mercurial medicines iregularly, and in small quantities.	2 months	Eruption on the arms, breast, and shoulders, night-pains and sweats.
20. Michael Brown	26	Disordered, primary symptoms 6 months.	A solution given by quack;—corrosive sublimate?	4–5 months	Blotches, scaly eruptions on arms and shoulders, followed by pains of limbs, &c.
21. George Wolfe	47	Chancres and bubo.	Wash and some pills till mouth became sore.	5 weeks	Superficial ulceration or excoriation of left tonsil.
22. Ann Moore	18	Not stated.	A few rubbings, considerable quantity of pills, without ptyalism.		Brown scaly spots about scalp, shoulders, and arms, night-sweats.
23. Mrs S.		Disordered by her husband.	A few mercurial pills, mouth affected.	3–7 months	Eruption of forehead and right cheek, superficial ulceration on right angle of mouth and tonsils, nodes on both tibiæ.

We trust that, when Mr Hewson glances at this body of evidence, collected from his own cases,—when he perceives that so great a proportion as three-fifths of his whole examples of iritic inflammation *may* be traced to the unfavourable operation of mercury, he will take the trouble of watching his patients with more vigilance, and inquiring into their history with the utmost accuracy, and, divesting his mind of the assumption which evidently runs through his whole book, that the origin of iritis from syphilis is never to be questioned,—that he investigate the question again with greater attention, and with comparison of the numerous cases which his opportunities necessarily give him. The cases which we above mentioned are not to be received as genuine examples of syphilitic inflammation attacking the ophthalmic tissues, but must be regarded as the result of mercurial action operating as a poison. It is worthy of notice, that, in all of these cases, the patients had been exposed, some repeatedly, to the ordinary causes of inflammatory diseases,—cold and moisture; and some had been thoroughly wetted (Case 11th) when under mercurial influence; and it is well known, that, under no circumstances does mercury show a greater tendency to act as an irritating poison, and a cause of local inflammation.

We submit these observations on our author's opinions, not in the spirit of hostility to the remedy, the cause of which he espouses, and the innocence of which he maintains; but because we perceive no evidence for the conclusions which he has drawn, and a manifest wish to evade the labour of investigation by the easier course of broad assertion, and assuming positions which ought to be demonstrated. The mineral, undoubtedly, possesses great powers of influencing the tissues of the animal body; but this very circumstance makes it also possess great powers of injury as well as of benefit. Judiciously used, and with proper precautions, it may not only induce no disease, but may cure many. It is a sort of double-edged weapon,—a species of Telephian spear, which may at once inflict a deadly injury and convey the means of recovery.

> "Telephus æternâ consumptus tabe perîsset
> Si non, quæ nocuit, dextra tulisset opem."

But while its evil is daily exhibited under the most careless and ignorant management, it requires, for displaying its sanative powers, to be wielded by a judicious and delicate hand.

After the observations which have already been made, it is superfluous to say any thing on the attempt to distinguish ophthalmic inflammation, resulting from a venereal, from that which originates in a mercurial cause. In the present state of our knowledge, we believe it is impossible to point out any marks or symptoms by which they might be discriminated; and the cases adduced in the work before us are sufficient proof of the justice of this opinion.

The diagnosis between iritic inflammation and inflammation of the capsule of the aqueous humour and rheumatic ophthalmia, is derived chiefly from the paper of Mr Wardrop, in the 10th Volume of the Medico-Chirurgical Transactions; and of their merit it is unnecessary to speak. The author wisely doubts the existence of ophthalmia from a gouty cause. It may at least be said, that if ophthalmic or iritic inflammation occurs in a gouty habit, it cannot possibly be regarded as different from ophthalmia arising in any other habit.

The conclusion of the Essay is on the subject of Treatment, which, according to the plan of Mr Hewson and most Dublin practitioners, is simple enough. He very justly reprobates the use of corrosive sublimate, as a preparation too violent and too little efficacious. The method of management will be understood by the following extracts, with which we conclude our observations.

"It simply consists in administering a pill, containing two or three grains of calomel, and half or quarter of a grain of opium, night and morning, or sometimes oftener; varying these proportions according to their effects, or the urgency of the symptoms. The opium is useful in allaying pain in the eye, which is sometimes a very distressing symptom; and also by preventing the calomel from irritating the bowels, and passing off too rapidly, the constitutional action of mercury is more promptly brought about. According as this is effected, we shall observe a gradual amendment in the eye: first, all pain and irritation cease; the redness of the eye-ball, the intolerance of light, and flow of tears, subside; the transparency of the aqueous humour is restored; the pupil assumes its natural actions, and all morbid depositions and appearances are removed from about it; and finally, but in some instances slowly, and after a considerable lapse of time, vision returns to its natural state. This is on the supposition that the treatment has been taken up in the most favourable circumstances of the disease, and during its first stage; but when it has been of longer duration, and when the organization of the parts concerned in it has undergone any of those permanent morbid changes, which so invariably attend its latter stage, our success will be more slow and less complete.

"If, after pursuing the preceding treatment for six or eight days, the mercurial influence does not manifest itself, or the symptoms with which the eye is affected do not sensibly yield, frictions may be combined with the pills, until ptyalism is fully established; from the first appearance of which, we shall usually find that the symptoms take a favourable turn. But if, after this sets in, no decided amendment follows, we may reasonably suspect the case not to be of a genuine venereal kind. Though frictions are, with a few exceptions, to be preferred to all other modes of using mercury in the treatment of syphilitic symptoms, in those affecting the eye they are not sufficiently active; nor would it be prudent, in the first instance, to join them with the pills, because these latter will seldom disappoint us; and by attempting to introduce mercury too rapidly into the system, we often defeat our purpose of exciting its proper constitutional action, and render this afterwards more difficult of accomplishment.

"It is almost unnecessary to remark, that, in the treatment of this ophthalmia, confinement can less be dispensed with than in that of any other symptom of lues venerea." pp. 58–61.

He regards blood-letting and blistering as quite unnecessary, and collyria and other topical remedies of no use. Eye-waters are certainly useless, as are most local means in a deep-seated inflammation; but we cannot say the same for general or even local blood-letting, which, if sufficiently copious, we have always found of great benefit, and particularly energetic in keeping the inflammatory process at bay, till the mercurial action began to operate.

IV.

Official Report on the Fever which appeared on board his Majesty's Ship Bann, on the Coast of Africa, and amongst the Detachment of Royal Marines, forming the Garrison of the Island of Ascension, in the Year 1823. By WILLIAM BURNETT, M. D., one of the Commissioners of the Medical Department of his Majesty's Navy, Physician in Ordinary to his Royal Highness the Duke of Clarence, and Honorary Fellow of the Imperial Medico-Chirurgical Academy of St Petersburgh. London. 1824.

THIS slender volume is valuable on account of the authenticity of the statements it contains, and the temperate judgment of the author. One fact recorded in it is particularly valuable, because the circumstances connected with it can so rarely occur, and are exactly those which seem to constitute, if any circumstances can constitute, an *experimentum crucis* as to the supposed contagious nature of any disease.

The Island of Ascension was uninhabited until 1815, when Bonaparte was sent to St Helena, and it became a matter of precaution to occupy Ascension with a few British troops. Till this time it was only visited during the turtle season, for the sake of that fishery, so that there existed no source of disease as derived from its being the habitation of man, or domestic animals. After it was occupied, the troops were liable to all the endemic causes of disease, arising from the soil, and climate, and season of the year. As might be expected, the amount of disease derived from these sources would vary somewhat in different years; but an unprecedented diffusion of disease, and increase of mortality, occurring in such a situation immediately after the arrival of a vessel with a sick crew, give the strongest presumption that the arrival of the vessel, and the increased sickness, were connected as cause and effect; or, in other words, that a contagious disease had been imported. Such appears to have taken place after the arrival of the Bann, a sick ship from Sierra Leone. During the seven preceding years 12 died, and of these only 2 from fever; but in two months after the arrival of the Bann, there died, of a fever having the same character as that which prevailed in that vessel, 15 of the garrison, besides 2 boys and 4 women.

We quote the account of the medical topography of this singularly situated spot of land in the middle of the ocean.

"The island of Ascension, in circumference about twenty miles, is situated in the ocean, in lat. 08° 56′ south, longitude 15° 27′ west, at the distance of many leagues from any other land, with a trade wind from the south S. E. constantly blowing over it; and being of volcanic origin, nearly the whole of its surface, excepting the Green Mountain, has a corresponding appearance, being (as in the neighbourhood of the garrison) of a dry, arid, and barren nature, with volcanic stones overlaying a quantity of mouldering pumice. On some of the more elevated spots, it is composed of ashes which extend to a considerable depth; still there are a few places where a fine light mould is met with about half a foot below the surface.

"At this island, in the month of April, the thermometer in the shade stands, from noon till nearly two p. m. at from 85° to 88°, generally 87°; and as the evening advances, gradually falls to between 76° and 80°. About two o'clock in the morning, a further reduction of one or two degrees takes place, which continues till five a. m. when the heat progressively advances till mid-day. In May the heat generally declines a little, and is commonly from 84° to 85° in the day, and from 75° to 76° at other times, which is probably owing to showers of rain, which prevail at this season.

"With respect to the heat of the summer in general, a sensible increase takes place in December, the thermometer being at noon towards the end of the month, at 86°; in January it advances about two degrees; and in February, and till the middle of March, it is often found at noon to have attained to 90° or 91°, sometimes 93°, and at these times the dews are heavy, and are seen in the morning. It appears, that in general the rains are not of long duration, though commonly heavy; pools of water are sometimes formed, but disappear in the course of a few hours: these rains, however, occurring for the most part at the turtle season, appear to have produced occasionally attacks of fever and dysentery, and it was at this period the Bann arrived.

" The posts occupied by the detachment, which consisted of thirty-five officers and men, were three in number, namely, the principal one or barrack, which is situated low, and surrounded by high grounds, about one hundred yards from the sea, is formed by several detached houses nine or ten feet square, and a large barrack-room, about forty feet long and fifteen broad: in this last there were about sixteen people residing. The several buildings are arranged in the form of a square, the smaller ones being occupied for stores, or by families, and the quarters of the officers are situated on the elevated ground to the south-east of the square, about twelve feet above it, and there the temperature was about two degrees lower.

" In the front of this barrack, and about one hundred yards from the sea, a well was dug, by the first garrison, about fifteen feet deep, being three feet below the level of the sea, in the hope of obtaining fresh water by its percolation through the sand; it was found, however, to be perfectly unchanged, rising and falling with the tide, on the reflux of which the well was left nearly dry, and the water remaining in it foul and offensive.

" The post called Springs is situated at the distance of four miles and a half in a S. E. direction from the barracks, being at an elevation of about nine hundred feet above them, and, with regard to the soil, corresponds, on its surface, in many places, with the neighbourhood of the barracks. There, however, the thermometer is commonly two degrees lower, and the relative variation is still greater in the twenty-four hours, being often in a ratio of 9°, 10°, and 12°. In some places the ground is covered with a superficial layer of earth, with here and there spots favouring vegetation. The same kind of volcanic ashes are also met with, but they are more compactly united; and the people lived in caves, hollowed out of this substance, in the sides of the mountain.

" The post on the Green Mountain, being about 2500 feet above the level of the sea, is situated immediately above Springs, at the distance of nearly a mile; and, on ascending thereto, the ground is seen completely to change its character. All trace of volcanic matter is lost; and it presents to the view a mass of calcareous rocks, covered to a great extent with a thin surface of earthy soil, which throughout the year is favourable to vegetation.

" This post is for days enveloped in clouds, occasioning catarrh and rheumatism; but the soil remains dry. The heat is from four to five degrees lower in the day than at the garrison, and at night from eight to nine. In July and August, the thermometer often stands at 65° in the morning, and the maximum is 80°. In February and March, the hottest season, the greatest height it attains is 85°." pp. 6–9.

The following is the abstract of the state of health from 7th March 1816 to 7th May 1823, or during seven years.

Disease.	Put on the sick List.	Discharged to Duty.	Invalided.	Died.
Continued Fever - -	10	9	–	1
Bilious Remittent Fever -	11	10	–	1
Fever - - -	2	2	–	–
Dysentery - - -	44	34	3	7
Diarrhœa - - -	3	3	–	–
Cholera - - -	3	3	–	–
Pneumonia - -	6	5	1	–
Chronic Hepatitis -	24	13	10	1
Rheumatism - -	6	4	2	–
Apoplexy - -	1	–	–	1
Epilepsy - - -	1	–	1	–
Paralysis - -	1	1	–	–
Ophthalmia - -	1	1	–	–
Asthma - - -	1	–	–	1
Vertigo - -	1	–	1	–
Inguinal Hernia - -	1	1	–	–
Fistula Lachrymalis -	1	1	–	–
Coup de Soleil - -	1	1	–	–
Pulmonic Inflammation -	2	2	–	–
Scurvy - - -	3	3	–	–
Fracture - -	3	2	–	–
Wounds and Accidents -	3	2	1	–
Other Complaints - -	3	3	–	–
Total	132	100	19	12

On the 27th of March 1823, the Bann sailed, with a sickly crew, from Sierra Leone, and arrived at Ascension on the 20th April. At the time of the Bann's arrival, the inhabitants, consisting of a garrison of 35 marines, officers and men, with some women and children, were in good health. We have now to observe what followed.

" The report of Mr Thompson, the medical officer of the garrison, states, that the appearance of the fever amongst them is dated eighteen days after the arrival of the Bann, viz. on the 11th of May; but he adds, however, that one of the people was attacked as early as the 28th of April with symptoms of fever, which he then thought might be a mild case of the Bann's, which was scarcely above two days after the landing of the sick. The man thus attacked was a convalescent on the 7th of May. On the 11th of May, a boy (son of one of the sergeants) was violently attacked, and ultimately died; but it is neither known nor believed that he had any nearer communication with the sick of the Bann than passing daily at no great distance from the tents to feed his father's poultry, and he was never on board that ship. Up to this time the restrictions on the intercourse between the ship herself and the garrison had not been much attended to, and certainly not at all as regards the communication of the garrison with each other; several things, such as sideboards, &c. had been landed from the Bann, which had been brought by her from Sierra Leone, and some of the officers and men had gone on board that ship (after the sick were landed), to the sale of the effects of some deceased person. From this time, however, every proper precaution was taken for preventing the extension of the disease to the outposts; notwithstanding which, six men, two women, and seven children, were taken ill at Springs, but fortunately none at the Green Mountain, though one of the men belonging to that post had been on board the Bann, at the sale before mentioned. Some days after the arrival of the Bann, Captain Phillips took up his residence at Springs; but, though he was much indisposed with a low fever, both the surgeon of the Bann and the assistant of the garrison are of opinion, that he did not suffer from the prevailing fever.

" About this time, the fever in the Bann had nearly ceased; but it went on, daily attacking some of the garrison; and it appears, by the official report, that twenty-eight were taken ill, of which number fifteen died, and thirteen recovered. Independently of the officers and marines above stated, two boys were attacked, both of whom died; and of six women four died; seven children likewise suffered attacks of this fever, all of whom recovered; but, unfortunately, three younger children, the eldest being only four months old, died from want of their usual sustenance, after the demise of their mothers." pp. 13–15.

The disease ceased in the island about the 16th June.

The progress of the disease on board of the Bann, is described in the following extracts.

" His Majesty's sloop Bann anchored off Free Town, Sierra Leone, on the 11th of January 1823, and continued there until the 25th of March, her ship's company on board being in excellent health. On this day, one case of fever, having severe inflammatory symptoms, was put on the sick list, and the patient died on the 30th, the fifth day of his illness. On the 26th, the master and two seamen were attacked in the same manner, and recovered. On the 27th, the Bann sailed from Sierra Leone."—" Between this time and the 31st of March, three more cases occurred on board the Bann. On the 31st, one case of the same kind was added to the list; and on the 3d of April, four more of her people were seized with the same complaint.

" From this time the sick list rapidly increased, and, according to the account of Captain Phillips, beginning forward in the ship, came gradually to the after part, till nearly all the officers and men were attacked; indeed, when it ceased, at Ascension, only about sixteen had escaped of the officers and ship's company. The total number attacked was ninety-nine, of whom thirty-four died, fifteen of them before the Bann reached Ascension."—"The ship was ordered to St Thomas's, but from the unhealthy state of the crew, and the bad weather, it was deemed advisable to proceed directly to the Island of Ascension; and on her arrival at that place, on the 25th of April, tents were immediately erected on shore at the distance of nearly five hundred yards from the garrison, with which all intercourse was interdicted, and the whole of the sick, amounting to forty-five, labouring under the prevailing fever, were landed, and placed in the tents provided for them." pp. 3-5.

From these facts Dr Burnett draws a conclusion, in which we cannot but concur.

"There cannot, however, I think, be a doubt of its having possessed contagious properties afterwards, and of its having been introduced into the Island of Ascension by the Bann; still, even here, difficulties occur in accounting for many circumstances, particularly the attack of two posts, and the exemption of a third, viz. the Green Mountain (where there were six soldiers, one woman, and two children), when the communication was open for eighteen days, and one of these persons had even been on board the Bann for some time. I have, however, formed my own opinion, from a consideration of all the circumstances of the case; and I have narrated the whole of the facts connected with it, as far as they have come to my knowledge, with the utmost impartiality, without suppressing or distorting one of them; and I must, after they have read the remainder of this Report, leave others to form their own." pp. 25, 26.

There are some other interesting facts and statements in this volume, tending to support our author's opinion, that the yellow fever, as it is called, is not *ab origine* contagious, but may become so under particular circumstances; but we decline entering upon them, as we wish to present our readers with the preceding observation, alone and distinct from every other, which might give opportunity for that special pleading which rather displays the ingenuity of the partisan, than advances the progress of knowledge.

V.

Practical Remarks on Lacerations of the Uterus and Vagina, with Cases. By Thomas M'Keever, M. D., late Assistant to the Dublin Lying-in Hospital. London, Longman & Co., &c. 1824.

This little tract contains a good deal of interesting information on a formidable accident, to which the uterus and vagina, in cases of difficult or complicated labour, are liable, and should be carefully studied by every obstetric practitioner who wishes to know and guard against the perplexing and dangerous emergencies of his art. The subject is lacerations of the uterus and vagina, an accident to which more attention has been recently given, from the circumstance, that, though too often fatal, instances of recovery are not only not unknown, but appear to be more within the compass of the efforts of nature, than an *a priori* knowledge of the parts concerned in the injury would lead us to expect.

Dr M'Keever commences with observations on the circumstances which dispose to this accident, or which act as predisponent causes to rupture or laceration of the womb; and infers from sundry observations, that though it may occur in females of every rank or condition, it is much more frequently found among those of inferior class. Thus, of 8,600 patients delivered in the Lying-in Hospital of Dublin, during the years 1819–20, and 1821, twenty cases of ruptured womb occurred, giving a proportion of one in four hundred and thirty cases. Mr Burns of Glasgow states, that rupture takes place once in 940 cases; while it is infinitely less frequent in the practice of eminent accoucheurs, attending chiefly ladies in the higher and middling ranks of society. Dr Willan, for instance, in a note prefixed to his Reports of the Diseases of London, states, that an eminent physician, in attending 2982 ladies, from the year 1776 to 1800 inclusive, lost thirty patients, one of whom only died in consequence of laceration of the womb; and Dr M'Keever is inclined, from conversation with several experienced practitioners in Dublin, to conclude, that this is a fair average proportion among females of the upper ranks of society in general. The author proceeds to assign reasons for this disparity of proportion, of which we take no notice, because we are not certain that the fact is established with sufficient precision.

Another circumstance to which Dr M'Keever is inclined to ascribe considerable influence as a cause of laceration of the womb, is the sex of the infant. Thus, of the twenty cases already mentioned, as having occurred during three years, in the Dublin Lying-in Hospital, while only five women were delivered of girls, fifteen were delivered of boys,—a disparity which our author ascribes to the greater average circumference of the head of the male infant, as determined by the measurements of Dr Clarke. This eminent accoucheur, it is well known, having measured the heads of sixty male, and an equal number of female children, born at the natural period, found the average circumference in the former to be fourteen inches, while in the female it was only thirteen and five-eight inches; and the arch, from ear to ear over the crown, seven inches and one-fourth in the male infants, and only seven and one-fifth in the females. As a further proof of the greater probability of this accident occuring in a male than in a female birth, Dr M'Keever remarks, that of 120 infants examined by the same physician, the circumference of the head exceeded fourteen inches and a half in six only, all of whom were males.

These preliminary remarks are followed by a description of the symptoms which take place when the womb is ruptured. Our readers will perhaps be pleased to see them in the words of the author, which are in general clear and accurate, though occasionally interrupted by digressions which we take the liberty of retrenching entirely.

" The patient, who, in all probability, has had a succession of tedious and of difficult labours, after encountering for many hours, perhaps for days together, sufferings of the most acute and harassing description, and at a time when her anxious friends and attendants are impatiently looking forward to the happy moment which is to free her from her misery, and render her a joyful parent, is suddenly attacked with an agonizing, crampish pain, referable to some particular spot in the abdomen; during the intensity of which she exclaims, that something has given way within her; she becomes sick, vomits a little, and complains of the child having risen to her stomach. Her pains cease, or are altered in character; she looks pale and ghastly, her countenance expressing great mental and bodily distress; she writhes and twists, with the severity of her torture, the hand being applied to that part which she describes as the principal seat of it; she sighs often; complains of stitches about the heart; gazes wildly and anxiously about her; has embarrassed breathing; and desires to be raised up in bed.

" When these symptoms are present, the experienced practitioner will feel but little hesitation in deciding on the nature of the case; but if, in addition, we find that there has been some hæmorrhage from the vagina, that the presenting part has receded, that the abdomen has become so exquisitely tender as to render the slightest pressure intolerable, having, at the same time become more prominent, and of an irregular shape, and that some projecting part of the infant can be distinguished immediately under its parietes, the case no longer admits of the possibility of doubt." pp. 7, 8.

In other instances, the symptoms are less obvious, or are disguised by some peculiar circumstances.

" Thus, where the head is low down, firmly impacted in the pelvis, and that the injury is confined to the muscular substance of the uterus, its peritoneal covering continuing entire, we are deprived of several of the leading marks. In the first place, there will be no hæmorrhage *externally*, in consequence of the vagina being blocked up; secondly, there will be no receding of the presenting part; and, lastly, we will be unable accurately to distinguish any part of the infant immediately under the abdominal parietes.

"I have said, that the labour pains either cease altogether, or become altered in character, from the time of the accident. In many cases, however, they continue to recur with tolerable regularity, at least until such time as the uterus has got completely shut of its contents; and on more than one occasion I have known the action of the uterus to return with sufficient force to effect the expulsion of the child through the natural passages." pp. 8–10.

The doubt attending some instances of this accident, and the difficulty of ascertaining whether it has occurred or not, will be understood by the following observations.

"Some practitioners lay great stress on the shape and feel of the abdomen, in a case of ruptured uterus. Unless, however, when viewed in connexion with other symptoms, I am inclined to think, that much reliance cannot be placed on either circumstance. Thus, the external form of the abdomen will vary considerably, according to the size of the woman, her degree of corpulency, the number of children she may have had, or that the uterus should happen to contain at the time, and a variety of circumstances. Besides, that in those cases where the peritoneal covering of the uterus and vagina has escaped laceration, the abdomen will continue to preserve nearly the same external configuration which it had prior to the accident. And with regard to the feel of the parts, we know that, on some occasions, the uterus has been found of so thin a texture, that the sutures of the infant's head could be readily traced through the abdominal parietes." pp. 11, 12.

"Neither can the feeling of pain on pressure be altogether depended on. In some instances I have known the patient make little or no complaint when the hand was applied over the surface of the abdomen; besides that, in many cases of tedious labour, particularly where there has been strong uterine action, with but little interruption, for several hours, pressure over the uterus, or indeed on any part of the abdominal parietes, will not unfrequently occasion very considerable distress. Yet such patients have been afterwards delivered naturally, and have recovered without a single unpleasant symptom." pp. 12, 13.

Ambiguity of pathognomonic signs, however, is not confined to the local symptoms only; for even the womb may be ruptured extensively, without giving rise, for many hours, to those constitutional complaints which have been supposed to attend its presence; or the constitutional signs may be so moderate, as for several days to throw the medical attendant entirely off his guard. Dr M'Keever relates an instance of the accident occurring in the person of "a florid, corpulent housekeeper, accustomed to live well and exercise but little,—after being in labour upwards of thirty hours." When visited by our author, about two hours after the accident, " her countenance was natural; her pulse but little disturbed; she had no vomiting; no difficulty of breathing; and, in short, was to all appearance so well, that it was with considerable difficulty he could be permitted to make an examination. On introducing the hand, however, he found the fœtus and secundines had escaped among the bowels, through an extensive transverse rent in the cervix uteri, opposite the projection of the sacrum." The woman died about forty hours after the accident.

Our readers will naturally be desirous to know something of the anatomical characters of this injury, or species of injury, which is so formidable in its consequences, and, at the same time, on some occasions so indistinctly marked. Though Dr M'Keever has given no separate section on this subject, the peculiar changes may be, without much difficulty, collected from the reports of several dissections which he has recorded; and we shall not scruple to bring the substance of this very shortly before our readers.

In the first fatal instance that is recorded, the uterus was found ruptured at the posterior part, near its junction with the vagina. The rent was concealed for some time by a layer of coagulated blood, which was spread over the edges; about a naggin of bloody serum was effused into the abdomen, the viscera of which bore marks of inflammation.

In the second instance of the same kind, a sloughy aperture, about the size of a shilling, was discovered in the left side of the uterus, one inch above the *os tincæ*, and which was found to communicate with an extensive coagulum, effused between the layers of the broad ligament. There was no effusion into the cavity of the abdomen, and the viscera were free from inflammation.

In the next case in which dissection was permitted, the seventh fatal case, an extensive laceration, with ragged unhealthy edges, was found to have taken place at the posterior part of the vagina, near its junction with the uterus, and a considerable quantity of fluid blood was found in the abdomen. The viscera and peritoneum were highly inflamed, and the intestines in many places glued together, by patches of coagulable lymph. The body of the womb was as much contracted as it usually is at so early a period after delivery, and appeared to be perfectly healthy.

In the fourth case, the tenth of the list, the eighth fatal one, nearly a pint of bloody serum, mixed with coagula, was found effused among the viscera, which, however, were healthy; and an extensive transverse rent, with livid irregular edges, was discovered in the anterior part of the cervix, extending nearly two-thirds round, through which the shoulders and back of the child were protruded, the head having remained stationary in the pelvis, which was sufficiently capacious.

In a fifth case, the eleventh of the list, in which the patient died undelivered, the gravid womb appeared quite entire before; but on turning down the fundus over the pubes, a large transverse rent was discovered opposite to the promontory of the sacrum, which formed, with the last lumbar vertebra, a very acute well-defined angle. On removing a large clot of blood which obscured the laceration, the belly of the child, with a loop of the cord, were found pressing through its lips. The viscera were healthy, though laying principally on the right side; some blood was effused, but not sufficient to account for death. The placenta, attached to the upper extremity of the womb by a sort of thin jelly, was readily detached, leaving several bloody clots on the denuded surface. A portion of the womb, to which the placenta adhered, being cut out, did not appear more vascular, nor with thicker edges, than any other part of the organ. The pelvis measured, from the sacrum to the pubes, not more than three inches and a quarter, and appeared to be much contracted in every direction.

In a sixth case, the twelfth of the list, the body of the womb, which was firmly contracted and healthy in appearance, was nearly altogether separated from the vagina, being merely retained by a slender shred on the left side; the edges of the laceration were ragged, and had a bruised livid appearance.

In the last case detailed by Dr M'Keever, the womb was ruptured at the fundus, in a direction from before backwards. The child was found in the cavity of the abdomen, with the head resting on the right ilium, and the breech lodged under the liver. The peritoneum, through its whole extent, was much inflamed; and the viscera, particularly the jejunum, ileum, and right extremity of the colon, were covered with shreds of soft lymph, which were readily removed by the finger. Large masses of coagulated blood, with about a quart of bloody serum, was effused among the bowels. The rent through which the infant had escaped, was so much contracted as barely to admit two fingers. Pelvis capacious and well-formed.

To these may be added two cases related by the author in his account of the symptoms, in the first of which he recognised, at the posterior and upper part of the vagina, a large transverse rent, communicating freely with the abdominal cavity; and, in the second, a transverse rent in the cervix, opposite the projection of the sacrum.

From these reports, we are enabled to form a pretty exact idea of the nature and the most common situation of this accident. It appears that the neck of the womb is the part most frequently ruptured, and that the rent or laceration is generally in the transverse direction. Next to this situation, the upper extremity of the vagina may give way, or the breach may take place in such manner that the womb shall be nearly or completely separated from its tubular outlet. In the above fatal cases, it appears that three were examples of rupture at the cervix, near the *os tincæ*, or junction with the vagina; two were ruptures of the posterior part of the cervix, opposite the sacral promontory; two were lacerations of the upper and posterior part of the vagina; and in one the rent round the cervix or *os tincæ* was so complete as to separate the womb from the vagina, except at a single point. In one case only was the rent situate at the fundus of the organ;—and in all of them its body was entire.

The same conclusions may be derived from the cases, favourable or fatal, in which the injury was recognised by mere examination during life. Thus, in the second case, which terminated in recovery, the rent was in the anterior part of the cervix, and was so extensive that the abdominal viscera could be distinctly felt through it; in the fifth and seventh, the laceration, which was extensive in both cases, was also in the cervix; and in the eighth, its anterior part was torn by a rent so large, that the infant had escaped into the abdominal cavity. In the first case, which was remarkable for recovery after mortification and discharge of a considerable portion of intestine, the laceration was very high in the posterior part of the vagina, and extending round to the neck of the bladder, communicated freely with that viscus.

We have also remarked, as a deduction from these dissections, that the direction of the rent is generally transverse, or extending round the neck of the womb more or less, sometimes so completely as to detach the organ, as in one or two instances already noticed (Case 5th and 12th), from the canal of the vagina. In one case only was the rent in the antero-posterior direction.

The rent invariably occupies the whole substance of the womb, from its mucous to its peritoneal coat, and, in general, all the tissues appear to give way at the same time. Dr M'Keever has noticed the case recorded by Dr John Clarke, in the 3d Volume of the Transactions for the Improvement of Medical and Surgical Knowledge, in which the womb and vagina were quite sound, but between forty and fifty transverse lacerations of the peritoneal covering only of its posterior surface were discovered. A case of this description shows the liability of the peritoneum to rupture, when unusually distended, and might lead to the conclusion, that this membrane, where it envelops the womb, would give way before the uterine substance itself, under the operation of such a cause. From what we have already said, however, regarding the ordinary situation of the uterine rupture, we think it may be justly inferred, that they differ considerably in this respect; and that, though the peritoneum is liable to crack above, where it undergoes extreme distension during the latter months of pregnancy, it is chiefly the circumstance of the dense, unyielding, and contractile structure of the neck of the womb, that renders it peculiarly liable to give way. Though the *os tincæ* is so constructed that it may be dilated at the period of delivery, its structure is so close and firm, that it does not readily yield to a distending force. At the same time, the uterine substance immediately above this is, during the process of parturition, the seat of alternate dilatation and violent contraction; and if the former is too great, or the latter too violent and somewhat irregular, rupture in the transverse direction appears almost a natural result; and it will depend much on the stage of labour, whether this rupture takes place above or below the *os tincæ*,—in the cervix of the womb, or at the upper extremity of the vagina.

The effects of rupture of the womb may be easily understood, from what we have already laid before our readers of the reports. Perhaps the laceration never acquires its greatest extent at the very first, and it is probable that, in many cases, it is small; but when once begun, extends as the uterine efforts go on. Bleeding from the edges of the laceration is an invariable consequence; and, in general, a quantity of blood is discharged from the vagina at the moment of rupture. A more formidable and unpleasant result is the escape of blood into the abdominal cavity, where it may, and sometimes does, occasion peritoneal inflammation. The blood, after some time, generally coagulates on the edges of the rent, while the serum trickles down into the peritoneal cavity between the womb and intestines. This is the source of the bloody serum noticed so often by our author in his autoptic reports.

In some instances the child, or a part of its person, may be thrust through the rent into the cavity of the abdomen; and in others, a large portion of intestine may escape into the uterus or vagina. The former result had taken place in the eighth, tenth, eleventh, and thirteenth cases given by the author; and in one which he relates at page 14th, in his account of symptoms. The latter occurred in one case only, the first; but the viscera were felt distinctly in the second. If intestine escapes, it generally, as might be anticipated, becomes strangulated between the lips of the rent, and then gives rise to the usual symptoms of strangulated hernia. This result was first noticed, according to our author, by Dr Labatt of Dublin, in his paper on Ruptures of the Uterus, in the Dublin Medical and Physical Essays.

"The Doctor's attention was first directed to this very important point in consequence of having observed, that, in several instances of lacerated uterus, the patients were affected with symptoms very similar to those that occur in cases of strangulated hernia. And this view of the matter was shortly after fully confirmed by an interesting dissection of which he received an account from a practitioner residing in Clonmel, where on examination after death a loop of intestine was found in a strangulated condition between the lips of the wound. A similar circumstance, I may observe, occurred in a case communicated by M. Percy to the Academy of Surgery, in Paris.—"The hernia was not discovered until the opening of the body, the wound in which it was strangulated being scacrely discernible, though it had been prodigiously large before the contraction of the uterus." pp. 32, 33.

Though the probability of death after such injury as rupture of the womb may appear sufficiently manifest, and so natural as neither to be questioned nor explained, yet it is not easy to name the exact lesion which is to be regarded as fatal, unless it be mere rupture of the organ itself. Yet the womb has been cut and torn, and the patient recovered; and in some instances recovery, as we shall notice, has taken place after the very injury of which we treat.

"The cause of death," says Dr M'Keever, "in ruptures of the uterus, it would in many cases be difficult to explain. The quantity of blood found effused among the viscera rarely exceeds what a woman would lose after a natural delivery, and that with a sudden gush. The fact is, the blood extravasated on those occasions consists for the most part of that which had circulated through the impregnated uterus, a loss the woman can in most instances bear with impunity. After this has escaped, I believe the lips of the wound yield hardly any blood. By some writers the inflammation of the peritoneum has been supposed to occasion death, but, in several instances, on dissection, the abdominal viscera and peritonæum were found perfectly healthy, besides that the patient often sinks before this formidable disease has had time to set in. I recollect, on one occasion, the woman expired instantly on the uterus giving way, although not more than a naggin of blood was lost, and the bowels were found altogether free from morbid appearance." p. 79.

After this testimony, it would be impertinent to attempt any explanation, or to assign any cause which, more than another, could produce the fatal issue. We shall therefore wait with patience, though not without eagerness, for a sufficient number of cases to determine what are the circumstances which favour recovery, and what are those which render this impossible.

We come now to notice, that Dr M'Keever has related two cases in which life was preserved, and recovery eventually effected, though in one the circumstances were particularly unfavourable. In this case, the account of which was first published in the Transactions of the Association
the upper and posterior part of the vagina was ruptured, and a portion of intestine, about six or eight inches, at first escaped through the wound. The woman herself, supposing this to be a portion of the membranes, merely contented herself with passing a slip of cloth through the loop which it formed in its descent. In the course of the fourth day after, as the supposed membrane showed no tendency to come away spontaneously, one of the female attendants attempted its removal, at first gently, but afterwards with increasing force, till the sufferings of the patient compelled her to desist. These remorseless proceedings were quickly followed by all the symptoms of the most severe intestinal inflammation; and two days after, when Dr M'Keever first saw the woman, he found, in place of the alleged portion of membrane, near a yard and a half of bowel coiled up under her, black and gangrenous, while the cylinder of the intestine was so incomplete, that the finger could be freely passed up and down through the rents. Nothing was attempted but palliative measures; and in three days more, Dr M'Keever found that the mortified portion of intestine had come away in the course of the previous night, after which the urgent and distressing symptoms had almost disappeared. This woman eventually recovered, though the excrements were discharged by an artificial anus in the vagina for about two years, when the natural passage was reopened; and the discharge by the vagina being gradually diminished for four or five months, the stools followed the natural route entirely; and even pregnancy again took place, and materially contributed to this favourable result. The case is instructive, and will be perused with great interest, not only by practitioners of the obstetric art, but by those who wish to understand how much injury may be inflicted on the alimentary canal without proving fatal or injurious to life, and what extensive powers of accommodation the animal body possesses. We can make room for the following conclusions only, as they are stated by our author, without pledging our faith for their legitimacy.

" First. That a case of lacerated vagina, even though it be accompanied with a rupture of the bladder, together with the loss of a considerable portion of intestine, cannot be considered as a necessarily fatal occurrence.

" Second. That life may be prolonged, and the system be properly nourished, notwithstanding the loss of nearly four feet of the *small* intestine.

" Third. That in such a case, the loss of absorbent surface is compensated for by an increased demand for food, as also by the patient selecting those articles of diet which afford most nutriment in a given bulk.

" Fourth. That, notwithstanding the increased desire for food, less nutriment is taken at any one time; a kind of continued sympathy appearing to be established between the stomach and small intestine, in consequence of of which the supply is proportioned to the diminished extent of surface afforded for absorption.

" Fifth. That aliments pass from the stomach, not in the order of their admission into that cavity, but according to their greater or lesser nutrability; those substances that afford least nutrition passing first, while those which afford most are retained a longer time.

" Sixth. That fat may be deposited in considerable quantity under the Integuments of the body, although the large intestine, which has been supposed to be the laboratory where this substance is formed, has been in a state of complete inactivity.

" Seventh. From the length of time the feces were retained in the large intestine, it affords a striking and convincing proof that they do not consist, as has been supposed, of the residue of our food in a state approaching to putrefaction; but that so long as they are retained in the body, the vital changes which they undergo preserve them from decomposition.

" Eighth. That an artificial anus, not the consequence of a strangulated hernia, may become completely obliterated, and the feces resume their natural healthy track.

" Ninth. That the changes naturally consequent on gestation and parturition, so far from interfering with the process of obliteration, appear rather to accelerate its progress." pp. 59–61.

It may be objected to the first case, that though an instance of severe and trying lesion to the intestinal canal, it was properly an example merely of rupture of the vagina, and that it cannot, therefore, with justice, furnish conclusions regarding the sanability of laceration or rupture of the womb. The second case is an answer to this objection. The rent, which was considerable, was situate in the anterior part of the cervix, and the bowels were distinctly felt through it. The injury appears to have taken place on the 11th September 1821; on the 16th the patient was free from pain; on the 17th the milk began to flow; and though there was a copious purulent discharge from the vagina, she was in every respect convalescent; and in ten days more she was discharged free of ailment. The treatment was a combination of the antiphlogistic and sedative plan. We may here add, that in the 12th volume of the Medico-Chirurgical Transactions of London, published some months ago, Mr Powel has related a similar case of rupture of the cervix, in which, though the patient was much exhausted during the delivery, which was effected by turning and then perforating the head, recovery eventually took place.

The practical measures to be pursued in the case of rupture of the womb, Dr M'Keever has investigated shortly, but with much judgment and good sense; and his opinions on the mode of treatment to be adopted are rational. He begins with considering the question of immediate delivery; and we entirely agree with him in saying, that we cannot comprehend, what objection can be urged against this measure in the event of rupture. The injury itself, sufficiently likely to terminate the existence of the patient, will undoubtedly be aggravated by leaving the woman undelivered. The infant is to a moral certainty dead; the action of the womb to expel this lifeless mass, is, perhaps, every moment enlarging the rupture; blood is flowing from its edges, and at once exhausting the patient, already much weakened, and acting as a source of local irritation, by getting into the peritoneum; and to complete this list of dreadful consequences, either the child is thrust into the belly among the bowels, aggravating the sufferings of the patient to an incredible degree, or the bowels themselves are protruded into the wound, and strangulated between its edges during the efforts of uterine contraction. Under such circumstances, immediate delivery gives the only chance either of alleviating present sufferings, or of promoting eventual recovery; and, in short, in every view of the case, delay is not only dangerous, but renders the patient's destruction every moment more inevitable. Our author justly remarks, that the expectation of a large lacerated wound, the most difficult of any to be healed, uniting under such unfavourable circumstances, besides being inconsistent with the established laws of the animal economy, is in direct opposition to the result of experience and the dictates of common sense."

Nor are we to be guided in the choice of our practical measures, by the result of cases intended to prove, that a female who has suffered rupture of the womb may not only recover from the immediate effects, but even may again become pregnant, and have a favourable delivery, though she may have discharged her lifeless and putrid mass piecemeal through various outlets. Such instances, our author has justly remarked, though they serve to show the extraordinary powers of nature, and the singular resources of the human body, can never be made the standard for the formation of rules of practice.

The analogy of extra-uterine conception, which has been maintained by some to be an argument for deferring delivery, is equally inapplicable.

"In the first place, a woman in this situation carries about her, at least until the termination of the ordinary duration of pregnancy, not a putrid, lifeless mass, but a living infant, with a smooth investing membrane. Secondly, the viscera of the abdomen are slowly and gradually habituated to the presence of the foreign body. And, lastly, the case is not complicated with a serious and alarming injury; consequently the powers of the constitution are, as it were, centred in one simple, undivided effort. either that of getting shut of the fœtus altogether by various outlets, or of enclosing it in a crustaceous covering, by which its decomposition is retarded, or altogether prevented." pp. 23, 24.

In one case only does our author admit that there can be any doubt or question about the propriety of immediate delivery; and this is when rupture takes place, and the infant escapes among the bowels, previous to the dilatation of the mouth of the womb and external parts.

"Should we, in such a case, persevere in our efforts to dilate the os uteri, and thus deliver by the natural passages, or would we afford the patient a better chance of surviving the accident, by cutting through the parietes of the abdomen, and extract the infant by what has been termed, the spurious Cæsarian Section;—this is undoubtedly a point of much difficulty, and one that requires the most natural and serious deliberation; at the same time I may observe, that the general impression amongst the most intelligent physicians and surgeons in this city, is decidedly in favour of the latter proposal. And indeed when we take it into account, the dangers attendant on a forcible dilation of the passages, such a preference must at once appear both rational and just. "To dilate the os uteri forcibly," observes Mr Burns, "and thus to extract the child, is a proposal so rash and so hazardous, that I know of none in the present day who would adopt it. Instances have occurred, in fact, in which the whole body of the Uterus has been torn from the Vagina by violent attempts at dilatation. Such, it is likely, was the cause of death in many of the cases alluded to by Peu and Mauriceau, although these writers do not appear to have been altogether aware of the circumstance. The former, in his Pratique des Accouchements, tells us "that the patient must inevitably perish, if much force has been employed in the dilatation of the Uterus:" and the latter, in his 49th Aphorism, informs us, "that in those cases of uterine hæmorrhage where it becomes necessary to hasten delivery for the purpose of saving the woman's life, and that on examination the os uteri is found *thick* and *rigid*, the patient will in general die; but that if we find it thin and dilatable, she will have a better chance of recovery."—Now it is, I conceive, by no means improbable that in several of these cases the patients died, not from the mere loss of blood, but in consequence of the violence done to the uterus. It is obvious, from the rigid unyielding state of the passages described by Mauriceau in this Aphorism, that there must have existed considerable contractile power in the uterus, a circumstance which would, in the majority of instances, have prevented the hæmorrhage proceeding to such an extent as to endanger the life of the patient.

"Further I may remark, there are a few well authenticated cases on record, where the expedient of cutting into the abdomen has been attended with the most satisfactory result; whereas there is no instance whatever of recovery after a violent and forcible dilatation of the passages." pp. 25–27.

There is, however, no room for hesitation, when the head of the infant remains impacted in the pelvis after the occurrence of this accident. In such a case, the forceps or perforator is to be employed as circumstances may require. In the majority of instances, the crochet will not only answer the purpose, but will be the most eligible instrument. The circumstances which require the use of the perforator will be determined by the nature of the case.

The merely medical treatment is very simple.

"The after treatment consists for the most part in endeavouring to allay vomiting by means of the saline effervescing mixture, combined with small doses of the tincture of opium; in attending to the state of the abdomen, arresting the progress of inflammation by means of general blood-letting, or, what will in most instances be found to answer better, by the application of thirty or forty leeches to the belly; and lastly, in endeavouring to support the patient's strength by mild, nourishing diet." p. 33.

A few brief observations on portending or premonitory symptoms, may be said to form the conclusion. It is needless to say any thing of them, further than that they merit the persual of the studious reader, and the diligent practitioner.

VI.

1. *Beschreibung einer vollkommen Exstirpation der scirrhösen, nicht prolabirten, Gebärmutter.* Von Dr A. Elias von Siebold, Professor der Medicin und Geburtshülfe auf der Universität zu Berlin, &c. &c. Frankfurt on the Main. 1824. pp. 54.

2. *Beschreibung der volligen Ausrottung einer nicht vorgefallenen carcinomatösen Gebärmutter.* Vom Herrn Dr G. P. Holscher, königl. Hofchirurgus zu Hanover. Journal der Chirurgie von Graefe und Walther. pp. 638. Berlin. Dec. 1824.

1. *Description of a total Extirpation of a Scirrhous and Prolapsed Uterus.* By Professor Siebold.

2. *Description of a total Extirpation of a Carcinomatous Uterus, not Prolapsed.* By Dr Holscher.

The operation for the extirpation of the uterus, has, since the beginning of the present century, been performed in Germany no less than six or seven times. The first of these operations was, in 1808, successfully performed by Osiander,* in Gottingen, on a woman from whom he had, seven years before, removed a cancerous tumour of the uterus. In 1813, the operation, or rather only the removal of a tumour from the *cervix uteri,* was performed by Professor Rust† in Vienna, but unsuccessfully, as the patient survived only eight days after it. In 1817, Langenbeck‡ extirpated a prolapsed uterus with success. In 1822, Sauter§ performed the still more difficult operation of removing an unprolapsed uterus; and since that time, the same operation has been attempted in Berlin, Hanover, and Vienna.|| Two of these cases we are now enabled to lay before our readers, and although unsuccessful, they show at least the perfect practicability of the operation, and lead us to expect, that, in cases of *scirrhus uteri,* where the disease is only local, and the constitutions of the patients are sound, it will not unfrequently be performed with success. This operation, though of late years revived, is not one of modern invention. In Sue's *Histoire des Accouchements,* Paris, 1786, we find an account of the extirpation of the uterus having been successfully performed as early as the year 1560, by Andreas à Cruce, physician and professor at Venice. Nay, the removal of the prolapsed uterus was successfully effected twenty years before that period (1540), by one Carpus, and in the beginning of the 17th century, the same operation was also performed by Zacutus Lusitanus.—*Vid.* Sue's Hist. des Accouch. In the same author, are to be found several other cases, both successful and unsuccessful, of this operation, which prove that it is not

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* Gott. gelehrte Anzeig. 1808. No. 130.

† Salzburg. Med. Chirurg. Zeitung, 1813. 3ter Band. St. 188.

‡ Langenbeck's Neue Bibliothick der Chirurgie. 3ter B. 3ter Stuck. p. 551.

§ *Vide* Edinburgh Medical and Surgical Journal. No. 80. No. 3. p. 173.

|| This operation has recently been performed by Professor Wattman in Vienna, but is not yet published.—Ed.

one of modern date. These accounts, however, are not very explicit, and contain neither a description of the operations, nor any accurate statement of the circumstances under which they were performed. To OSIANDER, undoubtedly belongs the merit of having improved this part of surgical science, and of having first systematically described the manner in which the operation should be effected. We shall now proceed to detail the cases before us. The first is from the pen of Dr Siebold, professor of midwifery in the University of Berlin; and the second from Dr Holscher, who has acquired considerable reputation as an operating surgeon.

" CASE I.—CAROLINE LOUISA ST. æt. 38, native of Berlin, of middle stature, and a delicate constitution, had, during her youth, suffered several attacks of fever and inflammation. When twelve years old, the catamenia first appeared, without any remarkable symptoms; and, till the time of her first pregnancy, continued to return after regular intervals. Latterly, however, they had very much varied. She was married, and had been twice pregnant. Once she had arrived at the full time, and once miscarried. For the last two years and half, she had laboured under a discharge of blood from the uterus. At first the discharge consisted of dark red blood, similar to the menses; but, during the last six months, coagula of blood were frequently mixed with it. In the lower part of the abdomen, particularly on the left side, and deep in the pelvis, she had frequent pains, which, together with the bleeding from the womb, compelled her to apply for medical assistance. She consulted, therefore, several professional men, but without deriving any relief. It must be remarked here, that during a great part of her life she had been subject to the depressing influence of grief, as she had suffered a great deal of affliction. With respect to coition, it was stated by some persons worthy of credit, that she had indulged in it immoderately, notwithstanding her own assertions to the contrary. During the last half year, she had been confined to her bed with a continual discharge of dark-coloured blood from the uterus. Her appetite had entirely left her, and she seldom slept on account of the acuteness of her pains. The extremities were nearly always cold, and often she was seized with cold shiverings, which were followed by excessive perspiration. Her bowels were regular, and in the alvine evacuations there was no blood, nor were there hemorrhoidal tumours at the orifice of the anus. The urinary secretion also was natural. Her principal complaint consisted of a dull gnawing pain in the pelvis, and of the uterine hemorrhage mentioned above. She also frequently had a painful sensation in the thighs, and latterly the left had become almost insensible to the touch. She was very much emaciated; the face was fallen in, and slightly tinged with yellow, the eyes sunk in the orbits, and pain was marked in every feature. She was extremely weak; the pulse was small, but not increased in frequency; and she was sometimes attacked, particularly after any great loss of blood from the uterus, with violent palpitations of the heart, which occasioned her great distress. The glands of the breast and axilla were throughout sound, but the inguinal glands were somewhat swollen, hard, and insensible to the touch. She could bear the hand on the abdomen, excepting in the right hypochondriac region, which was also hard, swollen, and painful on pressure.

"On examination, the uterus was felt, just inside the mouth, to be of a stony hardness; the vaginal portion was in part destroyed, and the remainder was torn and wrinkled; the mouth was sufficiently dilated to admit of the easy introduction of the finger. The vagina anteriorly was natural, posteriorly it was contracted, and turned up in the form of a retort round the uterus. Every examination was succeeded by long-continued hæmorrhage, and violent palpitation of the heart. Such was the condition of the patient on the 13th of April 1824. Soon afterwards, the febrile symptoms increased; the powers of digestion were gone, and the means which had before procured sleep now proved ineffectual. A daily examination *per vaginam* could not be made on account of the hemorrhage; but, *per anum*, both in the recumbent and erect positions, the patient was frequently examined, by which means it was ascertained that there existed *pronatio* in conjunction with *retroversio* uteri, and that both the body and fundus were in a state of scirrhous induration. Dr Siebold tried every means which he could suggest, without in any degree relieving the patient; the woman incessantly prayed that something might be done to ease her of the pain; and, under these circumstances, after laying the case before her and her friends, he determined on the performance of an operation.

"*Operation.*—On the 19th of April, 1823, at 4 *p. m.*, I proceeded to perform the operation, in the presence of Dr Kelsch, assistant physician to the lying-in Institution, Dr Hoffman, and Dr Köhler. The patient was placed in the horizontal position on the bed, with the feet supported on stools, and separated from each other. The bowels and bladder were previously emptied, and an anodyne given. A female catheter was introduced into the bladder, and held by one assistant, who, together with another, pushed the intestines forcibly upwards, according to Sauter's recommendation. The operator was seated in front of the patient, and having felt the catheter through the forepart of the vagina, he determined on making the first incision on the right side. For this purpose he introduced two fingers of the left hand into the vagina, immediately behind the arch of the pubes, and directly on the vaginal portion of the uterus, and along these he carried the instrument, with which he made an opening in the vagina, the catheter at this time being held as in the operation for stone, a little to the left side. The incision was now widened, so that the fingers could be got behind the womb, and the vagina separated in this part from the vaginal portion of the uterus. At this stage of the operation, a very peculiar sound was heard, something similar to what is heard on cutting through hard cartilage. The operator now took the knife out, and introduced along his fingers a small polypus-scissars, with which he separated on this side the uterus, from the body quite back to the fundus, from its lateral connexions. The intestines could now be distinctly felt, but they did not in the least protrude. The patient was refreshed with some wine and water, and then the operation on the left side was commenced. Two fingers of the right hand were introduced into the vagina, and along these Savigny's knife was carried, with which the separation of the vagina, from the uterus close behind the pubes, was begun, the assistant now holding the catheter to the right side. But on reaching here, the posterior part, where the retroverted fundus of the uterus was situated, there was such a scirrhous mass, that the separation with the knife would not succeed. It occurred to Dr SIEBOLD then, that OSIANDER, in his operation, had used an instrument resembling a sharp chisel (*scharf Meissel*), which he tried, and, contrary to his expectation, separated the uterus from the surrounding parts. The operator then attempted to draw the uterus towards him, but it slipped out of his hand, and ascended so far, that he could scarcely touch it with the point of his finger. Through the rectum, however, it could be distinctly felt, and therefore Dr Siebold directed an assistant to carry his fingers up the gut and fix the uterus, whilst he pressed the uterus down from outwards, and at the same time endeavoured to lay hold of it with a pair of polypus-scissars; but all his attempts were fruitless. He now saw that the uterus was only to be reached by the introduction of the whole hand, but the vagina was so narrow and contracted, as not to admit of this. The operator, therefore, immediately divided from left to right, with a scalpel, the perineum, so as to be able to introduce his hand, which enabled him to reach the fundus of the uterus; he then separated all the attachments on the left side, and the uterus fell into his hand. The quantity of blood lost was about six ounces. On the removal of the uterus, and as soon as it was ascertained that the intestines did not protrude, a piece of lint wetted with vinegar was inserted into the vagina. After a short interval, and again ascertaining that the intestines were in their natural position, some lint dipped in a solution of alum, together with some moistened with oil, was introduced into the vagina; over these a sponge and compress, and lastly a T bandage. The patient was conveyed to a neighbouring bed, and placed in the horizontal position, with the shoulders somewhat lower than the rest of the body. The operation lasted twenty minutes; and during the whole time, the patient's courage did not forsake her. An anodyne draught was administered, and the strictest rest enjoined.

"Several times in the evening after the operation, the patient was attacked with retching and vomiting; she also complained of occasional pains and smarting in the lower part of the abdomen, and of a troublesome contraction of the left foot, together with a numbness of the left thigh. During the night she slept but little; and on the following morning (April 20th), the pain was very acute and constant, the pulse quick and full, and the countenance covered with a cold sweat. In the former part of the day, the patient had difficulty of breathing, with a twitching under the right short ribs on every inspiration, but towards afternoon she felt herself somewhat better. At half past five, for the first time since the operation, she felt a desire to make water; but as it was important that the bandage should not be disturbed, sponges were placed before the vagina, so as to soak up the water; but at this time she experienced great burning pain about the pudendum. Anodyne and other medicines were given, and the patient was only allowed to take some barley-water or gruel for her drink. 21*st*, In the course of last evening the patient vomited a good deal, and rested very little. This morning the face and extremities were cold, the pulse small and quick; she was thirsty, but complained of pain nowhere excepting in the right hypochondriac region, which was tender to the touch. The bandages and dressings were removed, and fresh ones applied as before. The wound, as far as could be seen, had a very good appearance. The vomiting soon after returned, and the patient was evidently fast sinking. 22*d*, The whole body was cold and dry, the countenance fallen in, the eyes half closed, the mouth open, breathing difficult and interrupted. The patient was insensible, and often delirious, and about 10 *a.m.* she died, having survived sixty-five hours after the operation.

" *Inspectio Cadaveris.*—The body was examined on the following day, in the presence of Dr Köhler, my son, and the assistant physicians of the Lying-in Institution. On opening the abdomen, the small intestines were found inflamed, and dilated with flatus, as was also the colon. Throughout the whole cavity there was an effusion of lymph similar to what is found in persons who die of puerperal fever. The transverse arch of the colon was lower than usual, and the omentum majus altered in structure; some of its glands were hard and swollen, and others in a state of suppuration. Neither the bladder nor the rectum was injured in the operation, but both were somewhat inflamed. The ovaries were sound. The mesenteric glands were hard and swollen. The right lobe of the liver adhered to the parietes of the abdomen, was considerably swollen, and changed in structure, and in it were found several hydatids of different sizes, from the size of a nut to that of a hen's egg. The extirpated uterus weighed two ounces three drams. Its largest diameter measured two inches one third, and its shortest one inch eleven lines. In every direction the uterus was thickened, the fundus and body of the uterus were of a stony hardness, and the vaginal portion was already destroyed by cancer. On a perpendicular incision being made into it, it was found to be one scirrhous mass from the neck to the fundus. The usual form of the cavity of the uterus was quite obliterated, and in its place there was a small cleft only half a line in breadth. The mouths of both Fallopian tubes were closed, and the peritoneum in the neighbourhood of the uterus thickened. The chest presented nothing remarkable. The head was not examined."

There is one circumstance in this case which we cannot omit. It is evident, from the disease which was found in the liver, that such an extensive disorganization must have been of long formation, and that the organ was affected at the time of the operation. We naturally ask, then, was there no indication of this in the symptoms of the patient, and, if any, why was the operation performed? The first of these points can be easily ascertained, by referring to the history of the case. There we find it stated, that the right hypochondriac region was hard, swollen, and painful on pressure, which, combined with the other symptoms, sufficient to indicate that there was something materially wrong in that part. Why the operation was performed, we know not, because, under such circumstances, there was no chance of success, nor was it to be expected that the patient would derive any relief. This was the more astonishing, as the case occurred in the practice of a gentleman who has written against the operation *in toto*, and who is of opinion, that scirrhus uteri can never exist *per se*, but is always conjoined with some other organic disease. We will now give Dr Holscher's case.

"CASE II.—MADAME VON C——CHT, from Hildesheim (a town in Hanover), of strong constitution, middle stature, light coloured hair, and full habit of body, was married when only fifteen years old, and was the mother of four children. Until her 30th year she had enjoyed a tolerable state of health, although she had suffered a good deal of affliction. In 1822, when in the third month of her fifth pregnancy, she undertook a small journey; during the route, the horses became flighty, and Madame Von C——, in her attempt to jump out of the carriage, miscarried. A very considerable hemorrhage took place, and was followed by an inflammation of the bowels, which confined the patient to bed for three weeks. From this time her health became shattered, and a copious vaginal blenorrhœa kept her in a state of great weakness. In the summer of 1823, she was attacked with cough and pain in the chest, for which she was advised to try the Pyrmont baths, and by the use of these the pain and cough were relieved, but the discharge continued the same. By an examination *per vaginam*, it was soon discovered that the cause of this was not merely weakness, but that an alteration had already taken place in the vaginal portion of the uterus. In the month of August 1823, her general health again became much disturbed; she was attacked with an intermittent fever, and the vaginal discharge assumed a very bad character. Dr H. was informed (for up to this time he had not seen the patient) that every examination, even when conducted with the greatest care, occasioned a greater or less degree of hemorrhage, and was attended with considerable pain, which convinced him of the existence of a fungus at the mouth of the uterus, together with ulceration of the same part. On the 9th of January 1824, Dr H. was first called to the patient, when he found her much emaciated, with the countenance pale, but not of an earthy colour, which symptom is maintained always to be present in the advanced stage of scirrhus uteri.* The pulse was small and quick, but the respiration was natural, and she had no cough nor pain in the chest. Her appetite was good, but she complained of great thirst. The abdomen was perfectly soft, and nowhere painful on pressure, excepting in the situation of the uterus. The patient had latterly lost a good deal of blood, and the hemorrhage generally occurred whenever she exerted herself, or was examined *per vaginam.* The catamenia appeared every three weeks, and in the usual quantity, but were mixed with the flaky discharge. She particularly complained of pain in the back, heavy weight in the pelvis, and a desire to make water when she raised herself. On examination, Dr Holscher found the uterus completely encircled with projecting fungi, so that it was with some difficulty he could move the finger about in this organ. On the left side, some of the fungous protuberances had been torn off in the previous examinations, and on that side the finger could be got higher up the uterus than on the other. This investigation was not attended with any loss of blood, but was exceedingly painful, especially on introducing the fore finger into the uterus. The external parts of generation were free from disease; and, on examining her rectum, it was found that the surrounding parts were also sound. The patient was perfectly sensible of the nature of her complaint, and was quite willing to undergo any operation which afforded her the slightest chance of relief."

The symptoms given above led Dr HOLSCHER to think, that the patient laboured under carcinoma uteri, from the effects of which the uterus had already undergone considerable disorganization. Fortunately, the disease appeared to be confined to this organ, as traces of it were not to be discovered in the rectum, vagina, bladder, or ovaries. From numerous similar cases it has been found, that the disease terminates in a long and painful death, on which account any operation is justified which holds out a chance of prolonging the life of the patient. Dr Holscher conceived, that the removal of the scirrhous parts of the uterus alone was a very uncertain measure, particularly as we are always prevented from knowing with accuracy the extent of the disease. With respect to the use of caustic, he had uniformly observed, that, in cases where one part of the diseased uterus had been destroyed by it, the remaining parts were soon attacked with the complaint. There only remained then the total extirpation of the uterus as the last resource, an operation of which BARTHOLINUS has said, "Nimis autem et difficilem et periculosam operationem existimo," (*Hist. Anat. Rar. Cent.* II. h. 91. p. 385.), and which Dr Holscher would have been deterred from performing but for the result of SAUTER's case, and the earnest entreaties of the patient. The patient, although much reduced in strength, was not yet become hectic, nor did any affection of the chest exist. Dr Holscher therefore determined on the performance of the operation; and the question arose, whether he should remove the uterus by the high operation, *i. e.* by making an incision in the abdomen above the pubes, or in the mode recommended by Osiander and Sauter; but as he was not aware that the first had ever been attempted, and as he had not practised it on the dead body, he preferred adopting the latter.

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* By many authors, this earthy colour of the countenance alone is regarded as a characteristic mark of scirrhus uteri. For instance, A. J. BEAUVAIS, in his *Semeiotique*, 2d ed., p. 469, says—" La couleur de la face est pâle, jaune virescente, terrense, et c'est ce qu'on remarque particulierement dans le scirrhe et le cancer de la matrice."

"On the 5th of February 1824, Dr Holscher performed the operation in the presence of Dr Heine, Dr Kaufmann, and several of his pupils. The bowels and bladder were first emptied, and the patient was then placed in the horizontal position, with the legs separated from each other. An assistant pressed down the uterus, and pushed the intestines upwards, whilst the operator conveyed a scalpel along the middle and fore-finger of the left hand to the mouth of the womb. The instrument was then carried round the fungi, and the uterus separated from nearly the whole of its connexion with the vagina. The patient lost, at this step of the operation, about five or six ounces of blood. The operator now introduced his left hand into the vagina, and seized the carcinomatous mass, but was unable to pull it down. Although the description of Sauter's operation had determined Dr Holscher not to occupy himself much longer in attempting to effect a descent of the womb, yet he judged it advisable to convince himself, by one trial more, whether it was possible or not. The operator had provided himself with several pins of brass, of the size of a crow's quill in thickness, about a foot in length, easily bent, and rather sharp at the point. One of these was conveyed, with the point slightly bent, along the fore-finger of the left hand, and attempted to be pushed above the carcinomatous mass, into the cervix uteri. The left hand was then conveyed to the other side, in order that the instrument might be carried more easily through the cervix, the point of which the operator hoped that he should be able to lay hold of with a wire forceps (or a piece of wire bent into the form of a forceps), and thus effect a descent of the womb. But he was soon convinced, that the carrying of the wire through the substance of the uterus, to its outer part, so as to meet the instrument, would be attended with great difficulty and loss of time; and, even if he succeeded in getting it through, it would most probably slip, and therefore he relinquished the trial. He then determined on immediately removing the carcinomatous mass, which considerably impeded the performance of the operation. A circular knife was then conveyed, along the fore and middle finger of the left hand, to that part of the uterus from which the fungi had been torn off, and then carried, in an oblique direction, from right to left. After the extirpation of this mass, a hæmorrhage, to the amount of two or three ounces, took place, which was, however, soon stopped by the application of a sponge moistened with vinegar. The uterus was now more easily to be got at, and the operator introduced a sharp-pointed knife along its outer edge, as far back as the fundus. An opening being thus made, the circular knife was introduced, and the uterus separated from all its lateral connexions, after which it was easily removed. The operation lasted thirty-five minutes, and the whole quantity of blood lost amounted to no more than nine or ten ounces. The intestines did not in the least protrude. Some fine sponge was introduced into the vagina, and the patient conveyed to bed. Her hands, feet, and countenance were cold, and the patient was evidently much enfeebled by the operation. Some wine and water, together with an anodyne, were given. The patient passed a very restless night, and on the following morning was attacked with vomiting; the abdomen became distended, and in the lower part painful to the touch; the pulse feeble; and in twenty-four hours after the operation she died.

" *Post mortem Examination.*—On opening the abdomen, not the slightest trace of hæmorrhage was to be seen. The opening in the peritoneum had closed to the size of a hen's egg, and would have soon united if the patient had survived. There was no sign of carcinoma in any part, and the ovaries were quite natural. The intestines were distended with flatus."

It is not stated whether the other parts of the body were examined, but we presume that they were not. In the extirpated uterus there was a large carcinomatous ulcer, which had destroyed a great part of the internal surface of this organ. In the above account we do not certainly find sufficient to explain the cause of death, and this is frequently the case in great chirurgical operations, when the patients survive but a short time after them. We have thus given an account of these operations, and we leave our readers to form their own opinion respecting them. The last case held out a prospect of success, and we are almost inclined to think, with Dr Holscher, that had the operation been performed a month earlier, it would have been attended with a different result.

VII.

Original Cases with Dissections and Observations, illustrating the Use of the Stethoscope and Percussion, in the Diagnosis of Diseases of the Chest. Also, Commentaries on the same Subjects, selected and translated from Auenbrugger, Corvisart, Laennec and Others. By JOHN FORBES, M. D. Physician to the Chichester Dispensary. London, 1824. pp. 302.

THE appearance of a work of this nature affords us considerable gratification. After having tried the value of mediate auscultation and percussion by the test of experience for nearly three years, Dr Forbes now again comes forward in their defence, and earnestly invites the attention of his professional brethren to the important but difficult topic, of distinguishing, by these means, the obscure diseases of the chest.

Here we must be allowed for a moment to digress, while we inquire, How it is that a discovery, which we have no doubt an unbiassed posterity will rank among the first of this age, and which certainly deserves to form an era in the history of pathological medicine, meets, in this country, with such general contempt or neglect? Is it that, after fair and deliberate deductions, from a careful and continued series of experiments, Mediate Auscultation has been laid aside, from a conviction of its utter inutility? And, have we, by patient and persevering investigations, proved the most eminent men in this department of medical science, in our neighbour kingdom, to be nothing better than a trifling set of drivellers, amusing themselves with a plaything, and wasting their time in pursuit of the mere phantom of a warm imagination? Were this proved to be the fact, then one of our most distinguished professors was perfectly justified in treating publicly this subject with merited contempt. But, that this is by no means the fact, we most strenuously assert; and this we do still more unhesitatingly, because, all of those who, like ourselves, in opposition to the general opinion, or rather prejudice, have treated this subject with that attention which it deserves, and whose opinion we have had an opportunity of learning, join with us in speaking decidedly in its favour. What must we then conclude, but that, in the words of our author—

> " the impression formerly made upon the minds of the profession by this subject, was more lively than profound, and that through the influence of *Prejudice, Theory, and Indolence*,— one or all—the great-

est medical improvement of the age is in danger of sharing the fate of those thousand idle and useless projects, which daily spring up amongst us, and which, after obtaining a temporary notoriety, through the patronage of inexperienced and over zealous individuals, soon sink into merited oblivion?"—*Preface*, p. 8.

For the credit of our profession, we sincerely hope this prediction will never be realized.

Many causes have contributed to retard the adoption of these valuable methods of acquiring, during the life of the patient, a knowledge of the pathological state of the thoracic organs. We can allude to a few of them only. The most important is the neglect or contempt with which they are treated by our public teachers, especially those who, advanced in years, and skilful in the application of other methods, enjoy the highest reputation. Such men unwillingly lay aside the master to become once more the scholar. They underrate the value of what they do not know; and even when they have zeal enough to wish to learn a new art, the organ, upon whose delicacy the accuracy of the observation depends, is commonly already blunted. They are not capable of perceiving those minute differences of sound, which declare the state of the internal parts, and thus doubt that any difference exists, or that it is possible to distinguish them. As well might a person with incipient amaurosis doubt the observations made by the microscope. But even if the organ itself be perfect, these nicer distinctions cannot be recognised without great practice. Let a person, who even boasts of the acuteness of his vision, attempt, for the first time, to make an observation with a telescope, and he will find that to him it is impossible; yet we all give full credit to the observations of astronomers, because they are confirmed by the calculations founded upon them. But when we find the diagnosis hazarded during life upon the indications derived from percussion and mediate auscultation, and confirmed by dissection after death, why do we persist in withholding our confidence? Even when the signs are unequivocally perceived, we often fail to draw from them the right conclusion, from not having the advantage of an experienced instructor, and from deficiency of opportunity of self-improvement; for this is an art which books alone cannot teach, any more than surgical treatises can make a dexterous operator. We remember, that it was long after we had been using the stethoscope, before we were confident that the peculiar sounds we heard were *tintement metallique*, or pectoriloquism, although they were familiar to our ears. Likewise, different persons will estimate the same perception differently, as to loudness and extent; but the same difference exists as to our judgment of other symptoms. Let three persons feel a pulse, and, without communication, write down their judgment of its quickness, strength, hardness and fulness, and it will be found that they rarely agree. Why then can we expect greater coincidence, in the obscure perceptions obtained by the sense of hearing? The confidence of students is also shaken in the diagnostic signs derived from percussion and mediate auscultation, from the rashness and consequent errors of some hasty pretenders, and the doubts and caution of the more skilful; because, say they, if one who has studied these things for years cannot decide, how can we hope ever to find it useful? But it is by doubts that we acquire knowledge and certainty at last.

To return. Our author, in his preface, gives a short but interesting memoir of the celebrated Auenbrugger, the original discoverer of the practice of percussion, as a means of investigating the diseases of the chest, and adduces some ingenious and powerful arguments in favour of this mode of research, as an assistant of mediate auscultation, at the same time offering some excellent cautions to the young practitioner in the use of these means, against placing a too decided reliance at first upon his skill in their employment. He also justly invites the physicians of hospitals to adopt the use of them in their hospital practice, in consideration of the frequency of their opportunities, both as regards cases and *post-mortem* examinations.

In the first part of the volume, he gives us a translation of the original treatise of Auenbrugger upon Percussion of the Thorax, with the commentaries of Corvisart,—a very judicious introduction, both on account of the valuable original matter it contains relevant to the subject under consideration, and of the scarcity of the work itself. He then introduces a rather compendious extract from the treatise of Laennec, on the subject of mediate auscultation, as applied principally to diseases of the heart. These occupy about a third of the volume, and the rest consists of a number of cases and remarks illustrative of the use of the stethoscope and percussion, concluding with a translation of a small pamphlet on the same subject by Dr Collin of Paris.

In the short and concise treatise of Auenbrugger, we have much useful, and even valuable information, condensed into a small compass. It evidently bears the stamp of a superior mind, accustomed to close and minute observation at the bedside of the sick,—the true school of medicine. At the same time, if he had been more clear in his style, and more explicit in his observations, the method of the one would have been improved, and the extent of the other better defined. But both these defects have been remedied by the valuable commentaries of Corvisart, annexed to each aphorism, and by the occasional corrections of the translator. It may be interesting to some of our readers to know what was the opinion Corvisart entertained of percussion. The following extract from the work in question plainly manifests this.

" The morbid sound (elicited by percussion) is observed in acute diseases, either during their progress, or at their termination.

" This consideration ought to lead all medical men to use percussion in acute diseases, as they will thereby be enabled to form a more correct judgment, which, in such cases, is always a matter of difficulty. It has often occurred to me to see cases of acute diseases apparently over, and imposing upon the physician under the mask of intermittent or remittent fevers, and which have eventually ended in a fatal vomica or scirrhus of the lungs."—*Auenbrugger.*

" In acute peripneumony, or pleuro-peripneumony, the morbid sound is perceptible on the second, third, or fourth day at farthest; the natural resonance of the chest gradually lessens, and is entirely lost by the sixth or seventh day, if the disease is to terminate fatally. On the other hand, it gradually reappears if a recovery takes place. In the more severe and simpler cases, the common symptoms are less equivocal, but in the more complicated and obscure examples of the same disease—without percussion how shall we ascertain the state of the lungs, or be able to avoid committing ourselves by unwarranted opinions and false prognostics? In such cases, effusion into the pleura or vomica take place insensibly, and frequently under the deceitful mask of an amendment of symptoms, or even of convalescence. The result, however, soon shows the false security of the practitioner. These grievous mistakes can only be avoided by the employment of percussion."—*Corvisart.*

In that part of the work allotted to the translation from Laennec, we find some useful directions for the application of the stethoscope, together with some cursory observations on the several symptoms of diseases of the lungs and heart, as elicited by this instrument. These, however, as Dr Forbes candidly acknowledges, " although sufficient to render the subsequent histories intelligible to those of his readers who have not read the work of M. Laennec, are inadequate to direct the practical application of the instrument, or even to convey any just notion of its importance. In order to obtain this knowledge, the work of M. Laennec must be consulted."

In the collection of cases, which more essentially constitute the work of our author, we find a series of extremely useful and interesting facts, while we cannot but admire the degree of candour with which his own defects in judgment or in practice are acknowledged.

To young proficients in the use of the stethoscope, he says, "I would beg to suggest a most important caution, in the application of the stethoscope in diseases, or supposed diseases, of the heart. It is, never to overlook the precept of Laennec, not to explore the circulation unless during the most perfect state of quietude, both bodily and mental, of the patient. '*Il ne faut jamais tirér de conclusions de l'analyse des battemens du cœur, que quand elle a été faite après un repos assez long, si le sujet a fait de l'exercise, ou dans l'état de calme le plus parfait, s'il est attaqué de maladie du cœur.*'"

In the two or three first cases, upon which our author made some of his first experiments with the stethoscope, we are not surprised that he has failed in giving so correct a diagnosis as we find in his subsequent trials. But in the case of contraction of the mitral valve, we have the authority of Laennec himself for considering the indications afforded by this instrument as entirely dubious. He says,

"Depuis que j'ai commencé mes recherches sur l'auscultation médiate, je n'ai eu que trois fois occasion d'observer l'ossification de la valvule mitrale, à un degré tel qu'elle put rétrécir notablement l'orifice du ventricule gauche et produire le frémissement cataire; et ces sujets n'ayant pas succombé, je n'ai pu vérifier le diagnostic par l'autopsie."

Therefore, while we recollect this, and at the same time take into consideration, that the examination made by Dr Forbes (in the case of Daniells, Case VI.), was very imperfect, we must acknowledge, that the failure in diagnosis does not reflect any discredit either on the stethoscope, or on his judgment. For in these cases we think every candid practitioner will allow, that if we are obliged to rely entirely on general symptoms, we are nearly entirely left in the dark.

We regret extremely, that, owing to adventitious circumstances, Dr Forbes was frequently unable to pursue his investigations, in each particular case, with that degree of rigour and exactitude which was necessary to ensure correct results. At the same time, we cannot but admire the candour with which he acknowledges wherever he has been in error. He says on this subject,

"At all events, I think it necessary to notice every circumstance in the several cases, as well for my own sake as that of my readers, since I am willing to confess, that in drawing up these papers I wish rather to be considered as a student than as a teacher, and hope, at least, to derive as much benefit from them as my readers."

The value of the stethoscope cannot be argued so well on any ground as that of fact; and the following case, though perhaps not the most striking on our author's list, exhibits this instrument in a very advantageous light.

" Mr N—n, æt. 40, almost all his life was subject to the usual symptoms of indigestion, but was tolerably strong till within the last two years. Since this time has been subject to dyspnœa, and palpitation, increased on going up an ascent, and accompanied with a sense of fulness and oppression in the region of the heart. There is evidently a swelling in the præcordia, with very distinct hardness, answering to the left lobe of the liver enlarged. There is here also tenderness on pressure. The urine is at present scanty and high coloured. The uneasy symptoms about the heart are greatly increased by mental emotions.

" On *percussion,* the chest sounds well everywhere except in the region of the heart, where the sound is very dull over a considerable space. There is, however, no tenderness in this point."

The stethoscope was not applied at first, but relief was temporarily obtained, from the most distressing symptoms, by the abstraction of blood, and by the exhibition of alteratives and aperients. On the first application of the stethoscope the following were the results.

" *Respiration.*—Sound quite wanting on the left side, below the 3d or 4th rib, on the anterior part of the chest; very distinct, approaching to puerile, over the rest of this side; over all the right side very distinct.

" *Heart's Action.*—Sound of the contractions very loud over all the space in which there is no respiration; very distinct also, but not very loud, over all the rest of the left side; very indistinct over both sides of the back, and on the anterior part of the right side of the chest; pulse 108."

From this assemblage of symptoms, Dr Forbes deduced the following diagnosis. " Dilatation of the heart very considerable, principally of the right ventricle, with moderate hypertrophia; lungs sound." After this, though, by the use of remedies, he was for a time relieved, yet the symptoms returned in an aggravated form, and the next application of mediate auscultation gave the following symptoms.

" *Impulse* of the *heart* considerably greater than natural; *sound* proportioned to the impulse; loud in the cardiac region, moderate over the anterior part of the chest; great pulsation of the carotids; *respiration* inaudible over a large space in the cardiac region; puerile over the greater part of the left side, but not at all audible over the extent of a hand's breadth along the under edge of the right clavicle, except by means of a slight piping sound at the termination of each expiration. Diagnosis.—Dilatation, with hypertrophia of the heart, especially of the right side; hepatization of the superior lobe of the right lung."

This patient lingered on for three months, and at the inspection of the body after death, Dr Forbes read to the gentlemen assisting him the following signs, which he expected to find corrected upon reflection from the diagnosis, founded upon the last stethoscopic examination.

"Hypertrophia, with dilatation of the heart, especially of the right side, both in a moderate degree. Hydrops pericardii? Pleuritic inflammation and serous effusion of the left side?"

These two last symptoms he suspected, but was not confident of. The dissection was as follows.

"On removing the sternum and cartilaginous ends of the ribs, the lungs were not at all visible, the whole exposed space being occupied by the pericardium, prominent, and distended with fluid. On opening the sac, it was found to contain upwards of a quart of seropurulent fluid. The whole internal surface of the pericardium was covered with a layer of a white and albuminous like substance, answering exactly to the description given by Corvisart, of the state of the parts in pericarditis. The heart was in size more than one-third, probably one-half, larger than natural; the parietes of at least the natural thickness, and those of the left ventricle more than double these of the right. All the valves and outlets were in a sound state. The lungs were adhering in many parts on both sides, and on the left side there was about a quart of sero-purulent fluid. The pleura, on the lower part of this side, was coated with a layer of coagulated lymph."

Here we find a diagnosis, in a most intricate and perplexing disease, almost literally verified by the autopsy; and indeed we agree with Dr Forbes, that the doubts which he expressed on any part of his diagnosis were without foundation. Though Laennec gives us no stethoscopic indications of the dropsy of the pericardium, yet, from the concomitant results of the examination of the respiration and the action of the heart, assisted by the general symptoms, we think the indications might be very fairly and plainly deduced. But we perfectly agree with our author, both from our own experience, and from the testimony of others, that, until the ear has gone through a sufficiently long education in the use of mediate auscultation, it is difficult, or even impossible, to give a decided and correct opinion upon its results;—and this particularly in diseases of the heart.

But much as we respect and admire Dr Forbes's abilities, and favour the subject which he advocates, we must confess that, in one or two instances, his favourite theory appears too much to have led him away; particularly in the case of Thomas Ide, No. XIV. Here was a case, in our humble opinion, consisting merely of spasmodic angina, from the digestive system not being in proper tone; where the symptoms indicated by mediate auscultation, both in the lungs and in the heart, were natural; and where the principal feature of his complaint, besides the dyspnœa, was flatus in the intestines, which, being discharged, relief to the asthmatic symptoms always followed. Now, these being the principal circumstances in the case as given by our author, we humbly conceive that there is no necessity to suppose a diseased or even attenuated state of the heart to account for them. But when, after the exhibition of two mild aperient pills, the greater part of the symptoms were removed, and the patient returned to his usual occupations, after a fortnight's rest, with only occasional attacks of palpitations, and those very much slighter than before,—when, we say, after this we find the Doctor still adhering to his text, that he had been treating a case of diseased heart, we confess we are rather surprised. However, in the next case, which is very similar, he acknowledges that the altered action of the heart was sympathetic with the derangement of the digestive organs.

In aneurism of the aorta, we have, as yet, been able to derive no assistance from the stethoscope or percussion, as both Corvisart and Laennec acknowledge.

In hydrothorax, our author has detailed several interesting cases.

" JOHN LUFFE, æt. 66, affected a year and a half with dyspnœa, greatly increased by motion of any kind, also with a frequent cough, attended with a good deal of expectoration. During the last two months, his lower extremities have been œdematous, and he is now considerably anasarcous over the whole body. Since the appearance of the œdema, the urine has been scanty and sedimentous. He is now in bed, and lies with his head *quite low*, in which posture he says he is most easy. He can lie almost indifferently on either side, and sleeps soundly. Pulse irregular, full, and oppressed. He has no pain.

" The stethoscope gives puerile respiration over all the right side, but detects no respiration whatever on the left. Percussion gives similar results, eliciting a distinct clear sound from the right side, and a dull fleshy sound from the left.

" Diagnosis.—*Hydrothorax of the left side.*

" This man died suddenly four days after the examination. The body was not allowed to be inspected, but permission was granted to tap the chest. This was accordingly done, and from the left side three or four pints of serum issued, while from the right not a drop of fluid was discharged.

Now, in this case, our opinion perfectly coincides with that of Dr Forbes, that though, from the general symptoms, we might decide upon the nature of the disease, and even that not with any confidence, without the aid of mediate auscultation, no person would have ventured to pronounce that the one side was full of water, and the other contained not any. He here also remarks, with propriety, that "the common signs, drawn from the facility and comfort of assuming particular postures, were here either entirely wanting, or the reverse of those generally received." Now, this being the case, if we wished to evacuate the fluid which we suspected to be in the chest, what means have we to direct on which side to operate, so valuable as the stethoscope?

With regard to the paracentasis of the thorax, our author thinks, with Laennec, that it is too much dreaded by practitioners generally.

"In hydrothorax depending upon visceral disease, the benefit can, at best, be only temporary, while the risk is considerable. In empyema from chronic pleurisy, the existence of adhesions, compressing and binding down the lung, will not only render the operation nugatory, but remove almost the only chance left of recovery. But in a case uncomplicated with any organic disease, or any very considerable degree of inflammation of the pleura, where it is of recent occurrence, and where the effusion is in all probability pure serum, and existing in great quantity, I think, in such a case, there is every reason for anticipating a happy result from the operation."

In anasarca of the lungs, it is confessed by Laennec himself, that the stethoscope affords us only partial assistance, at least as far as his investigations had hitherto gone. Our author adduces a case, in which he notices, that although this instrument detected the presence of water in the *cavity of the chest*, yet the sound of the respiration was dull and indistinct, a coincidence which he had never before witnessed; in effusion into the chest, the respiration generally sounding unusually loud (puerile.) Upon examination after death, the lungs were found in an anasarcous state. Upon this ground he institutes this query—May not this absence of puerile respiration, in cases where the presence of a considerable portion of water in the cavity of the chest is detected, be the pathognomonic symptoms of anasarca of the lungs? We wish that this might prove an additional light upon this obscure subject; but we much doubt, if, in cases of degeneration of the substance of the lungs, analogous symptoms would not be produced of chronic pleurisy. Laennec gives, as the principal distinctive mark, a symptom which he denominates Hægophonism, which is a variety of pectoriloquism, of which, in the present volume, we have two instances, though Dr Forbes seems not yet to have acquired the precise application of this symptom, the definition of which, by Laennec, is indeed sufficiently obscure. "L'egophonie ressemble à la pectoriloquie, en ce qu'elle consiste aussi en une forte résonnance de la voix sous le cylindre.—La voix, plus aigue plus aigre que celle du malade, et en quelque sorte argentine, produit seulement une illusion telle qu'il semble que quelqu'un parle dans la poitrine du malade. Elle a, d'ailleurs, un caractère constant d'où j'ai cru devoir tirer le nom de ce phénomène: elle est en quelque sorte tremblotante et saccadée comme celle d'une chèvre." This symptom is, according to Laennec, far less formidable than the true pectoriloquism, as by far the greater part of the patients in whom he observed it, recovered.

In the case of Mr J. S. (Case, No. xxviii.) we have a striking instance of the accuracy with which, by careful investigation with the stethoscope, we may trace and follow in its progress that obscure and treacherous disease, chronic pleurisy, which so repeatedly deceives us in the use of the ordinary diagnostic means. Our limits will not allow of the transcription of the whole case, which is detailed at considerable length; we will, however, for the satisfaction of our readers, give the several diagnosis, formed at the time of each investigation by the stethoscope, and compare them with the results of the *post-mortem* examination.

" J. S.—December 1822.—Pleurisy of right side, with copious effusion.

" March 1823.—Pleuritic effusion of right side still great, but diminished.

" April.—Same results; no increased absorption of fluid, but rather the contrary.

" June.—Attack of pleurisy of the left side, with considerable effusion and compression of the lung, but less than on the right side; absorption of part of the fluid on the right chest.

" July.—Considerable absorption of fluid on both sides, but still a good deal on the inferior parts of both; probably adhesion has taken place over the greater part of the right side, between the lungs and pleura costalis, except on the inferior lobe.

" September.—Has had a fresh attack of inflammation, I think peripneumony, and also a fresh pleurisy of the left side; left lung thickened, and partially hepatized. Absorption of fluid of right side goes on, and adhesion of upper lobes increased."

From these several results, Dr Forbes collects the following view of the state to be expected after death.

" Serous or sero-purulent effusion in both sides, most on the left, but on the right thickest. Adhesion of the lungs to the pleura, wherever there is no effusion; *e. g.* the greater part of the right lung, and the upper lobe of the left probably. Carnification of both lungs, in different points and degrees; hepatization of outer part of the right superior lobe, also of the left. False membranes and cheesy crusts on different parts of the pleura."

These anticipated results were almost literally verified by the dissection,—almost the only defect being the absence of fluid in the lower part of the right cavity of the chest, instead of which, the whole surface of the lung was adhering, throughout, to the *pleura costalis*. This error, Dr Forbes candidly acknowledges, arose more from the fault of the observer, than of the diagnostic means; since he attributed the absence of respiratory sound, in the lower part of the right side, to the presence of water, which was, in fact, owing merely to the natural encroachment of the liver.

Dr Forbes concludes his volume with a condensed translation of a modern essay on the physical diagnostics of diseases of the chest, by Dr Collin of Paris. This is nothing more than a summary of the doctrines of Auenbrugger, Corvisart, Laennec, and Landré Beauvais, on succussion, percussion, mensuration, and mediate auscultation. We think our author would have much better swelled the size of his work with those cases which he has "suppressed for fear of making it too voluminous," but with which we hope, at some future time, he will favour the public.

We cannot dismiss this subject without once more strongly recommending Dr Forbes's work to the perusal of our readers. We feel convinced that it is capable of affording them essential assistance in the prosecution of their pathological studies, as well as in their practical diagnosis.

APPENDIX TO THE ORIGINAL COMMUNICATIONS.

History of a Case confirming the Efficacy of the Means of Evacuating the Stomach, in Cases of Poisoning, proposed by Mr Bryce *in No. LXXXII., p. 220 of this Journal.* Communicated to Dr Duncan, Junior, by William Pulteney Alison, M. D. Joint Professor of the Institutes of Medicine in the University of Edinburgh.

On the 5th of February, at 10 *p. m.*, I was called to see a gentleman's servant, æt. 35, a strong man, of rather spare habit, and of the melancholy temperament, who, I was informed, had just confessed having swallowed ℥iss. of laudanum, fifteen or twenty minutes before, in a fit of despondency succeeding to intoxication.

I found him speaking incoherently, and as if intoxicated, but without any appearance of stupor. His pulse was full, strong, and frequent; skin warm, and face somewhat flushed.

A quantity of the powder of mustard, diffused in warm water, was given without any effect; and the apothecaries' shops being shut, there was some delay before any other emetic could be procured. In a short time, however, Dr John Campbell arrived, bringing with him ʒiss. of the sulphate of zinc, which was immediately dissolved in water, and the patient was with difficulty, and after some farther delay, induced to swallow it. As this produced no effect, notwithstanding repeated irritation of the fauces, ʒi. of the same substance, which had now been procured, was given in divided doses, and afterwards a small quantity of a solution of tartar emetic, and some hot water. He was now rapidly becoming comatose; his face was turgid, and of a purplish colour; his breathing stertorous and irregular. He was roused by dashing cold water in his face, applying ammonia to his nostrils, and repeatedly irritating the fauces; and vomiting was at last procured, but not till nearly an hour after the poison had been taken. The vomiting recurred several times, but the quantity of matter evacuated hardly exceeded a mouthful at a time. It had a brownish colour, and smelt strongly of laudanum. About 11 o'clock, all the expedients to excite the action of vomiting appeared to have lost their effect, and he was in a state of profound coma.

Mr Bryce's instrument had in the mean time been procured, and as soon as it was adjusted, Dr Campbell introduced the œsophagus tube without difficulty into the stomach by the mouth; the muscles of the jaw which had formerly been strongly contracted, having now become relaxed. The tin tube, and bladder, containing an English pint or more of tepid water, were then affixed to it, and the end of this tube and bladder elevated, till the contents had run into the stomach, and then lowered. The cork being now removed from the bladder, we had the satisfaction of seeing a wash hand basin about half filled with fluid from the stomach, which had a brownish colour, and a decided though not strong smell of laudanum. The quantity thus evacuated appeared to be about three times as much as had been introduced by the instrument.

The tin tube was then withdrawn, the bladder again filled with tepid water, and the process repeated; the fluid that now came from the stomach was in much less quantity, hardly more than what was introduced, and it had very little colour or smell. No difficulty whatever was experienced in the management of the instrument, except what arose from an accidental rent in the bladder.

The farther progress of this case, after the evacuation of the stomach had thus been effected, is only interesting as it shows so strong an impression to have been already produced on the nervous system by the quantity of laudanum taken, as to leave little room for doubt, that if what was thus removed from the stomach had remained in it, and been absorbed, the consequences would have been inevitably fatal.

After the evacuation of the stomach, his breathing was more regular, and less stertorous, but the livid flushing of the face continued; and the only sign of sensibility that he gave, was by making frequent but feeble efforts to scratch his legs and thighs. His pulse was still full and frequent, and skin warm on the upper parts of the body.

He was now stript naked, and cold water dashed over his head and shoulders. By this he was powerfully excited; he sprang from his seat, and fell forwards, gasping strongly and repeatedly; and, when raised, opened his eyes, and looked wildly round him. He was rubbed quite dry with warm flannels, and afterwards walked, with assistance, into an adjoining room, where he was laid down on a bed, and hot bottles applied to his feet which had become very cold.

For nearly an hour after this time he was very restless, tossing himself about on the bed, and scratching himself incessantly, although he could hardly be induced to speak. ℥ij. of sulphate of magnesia were given him. A little before one o'clock he fell into an apparently tranquil sleep. The flushing of his face now subsided completely, and his skin became rather cold; his pulse was smaller, but firm; his breathing slow, but regular and easy.

We watched him for more than an hour in this sleep, rousing him occasionally, which was easily done. He now spoke when roused, and knew the bystanders; the florid colour of his lips returned; and at two o'clock he seemed so well that we thought it safe to leave him, with instructions to the attendants to rouse him occasionally, particularly if his breathing should become noisy or irregular.

At six, one of the gentlemen of the family, who had sat up with him, came to inform me that his breathing had become noisy, and apparently difficult, and that he could not rouse him. On visiting him, I was much mortified to find his appearance very much altered for the worse. He was quite insensible; his countenance pale and ghastly; lips livid, and jaws fallen; his skin generally cold, although warmth had been assiduously applied; his respirations only four or five in the minute, and the inspirations performed with a convulsive start; the pulse much smaller than before, though still tolerably firm. He had just the usual appearance of a person dying comatose; neither dashing cold water on his face, nor pushing a feather dipped in the *aqua ammoniæ* up his nostril, produced any immediate effect upon his respiratory muscles; and anticipating a total cessation of respiration, I procured a pair of bellows, and sent a message to Dr Ballingall to request the favour of his attendance with a flexible tube, to try the effect of inflation of the lungs, as practised by De Lile and by Mr Brodie with success, on animals apparently killed by narcotic poisons, and before their time, likewise successfully by Mr Whately on the human subject.*

However, by persevering in the application of ammonia to his nostrils, closing his mouth at the same time, so as to secure its complete introduction in the act of inspiration, by pouring a little of the aqua ammoniæ on his breast, and rubbing it strongly in with warm flannels,—continuing the application of hot bottles to his feet and stomach, he was at length roused from the state of coma. First his breathing became gradually more frequent and regular, and was apparently excited by the vapours of the ammonia; then he moved his head from side to side on the irritation of his nostrils; and finally, threw his head forwards and opened his eyes. By continuing to rouse him at short intervals, the improvement was kept up; he took several draughts of warm coffee and of lemonade; at seven o'clock he vomited repeatedly, and the matter rejected had not the least smell of laudanum. He passed at this time a small quantity of urine, with difficulty; his bowels were not moved until more purgative medicine had been taken. The natural temperature of his skin was not completely restored till about ten o'clock, by which time his pulse had become much fuller. His recollection and other mental powers were recovered very gradually, and he was drowsy and confused during the whole day.

I have been led into a longer detail than I intended; but the case seems to be of some importance as illustrating three important points in the treatment of persons under the influence of that poison.

1. The great facility with which the stomach can be evacuated by the simple apparatus invented and described by Mr Bryce.

2. The danger of allowing persons under the influence of narcotic poisons to sleep for more than a few minutes at a time, even after the stomach has been fully evacuated, and when all the appearances are favourable.

3. The peculiar efficacy in a case of poisoning by narcotics,

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* See London Medical Observations and Inquiries, Vol. VI.

both of the affusion of cold water, and of the stimulation of the nostrils by ammonia. These expedients seem peculiarly useful in this case (just as in the common case of syncope), not merely as general stimulants to the nervous system, but as exciting sensations which have a specific effect on the respiratory muscles. The sensations thus produced, whenever they are strongly felt, uniformly excite the action of inspiration, and thereby, in cases of this kind, contribute to prevent the failure of respiration; and we know, particularly from the experiments of Mr Brodie, and from the case recorded by Mr Whately, that the failure of respiration is the immediate cause of death from the truly narcotic poisons.

10*th March*, 1825.

PART III.

MEDICAL INTELLIGENCE.

DOMESTIC.

Alteration of the Statutes enacted by the Senatus Academicus of the University of Edinburgh, for conferring the Degree of M.D.

Q. *F. F.* Q. *S. Statuta Solennia de Doctoratus in Medicina Gradu in Academia Edinburgena capessendo, in posterum, jubente Senatu Academico, observanda.*

I.

NEMO ad DOCTORATUS in MEDICINA GRADUM promoveatur priusquam QUADRIENNIUM, in Academia Edinburgena, aut in alia Academia, ubi alumni ad Summos in Medicina honores promoveri soliti sunt, per Sex saltem Menses quotannis, Medicinæ studio impenderit; nisi

1. Qui jam evectus fuerit ad gradum Magistri Artium in Academia quavis Scotica, vel ad parem gradum in alia Academia, opera quadriennium Literis et Artibus prius dedita, quam ad Medicinæ studium se contulerit;

2. Qui, præter studia sua medica in Academiis,—alio insuper anno,—Nosocomium quoddam publicum, ubi ægri octoginta vel plures decumbere solent, per sex saltem menses frequentaverit,—et curationi a Medicis vel Chirurgis ibi institutæ adfuerit;

3. Qui per spatium unius saltem anni in re medica Exercitûs vel Classis Britannicæ, vel Societatis Mercaturas in India Orientali facientium, occupatus fuerit.

Illi autem qui quamlibet ex his conditionibus absolverit, Gradum Doctoratus consequi liceat, postquam TRIENNIUM in hac aut alia Academia supra definita, Medicinæ studio se dederit.

II.

Nemo Exercitationes ad Gradum Doctoratus capessendum subeat, qui non testimoniis idoneis ostendat,

Primo, Sequentibus quas Scientia Medica complectitur Disciplinis, sub Medicinæ Professoribus in hac aut alia Academia supra definita, semel vel sæpius se operam dedisse, scilicet,

ANATOMIÆ et CHIRURGIÆ, -	Per curriculum Sex Mensium.
CHEMIÆ, - - -	
MATERIÆ MEDICÆ et PHARMACEUTICÆ, - - -	
MEDICINÆ THEORETICÆ, -	
MEDICINÆ PRACTICÆ, -	
REI OBSTETRICÆ, et MORBIS FŒMINIS INFANTIBUSQUE PROPRIIS,	
MEDICINÆ CLINICÆ, scilicet curationi ægrorum in NOSOCOMIO PUBLICO decumbentium, a Medicinæ Professore institutæ, et Prælectionibus habitis de iisdem ægris,	Per curriculum Sex Mensium, vel per bina curricula Trium Mensium ;

duabus ex his vel pluribus, singulis, annis, et etiam,

BOTANICÆ, - - -	Per curriculum Trium Mensium ;

Secundo, Duabus saltem ex sequentibus etiam Disciplinis (a seipso, prout sibi maxime conveniant, eligendis) in hac aut alia Academia supra definita se operam dedisse, scilicet,

ANATOMIÆ PRACTICÆ, -	Per curriculum Trium saltem Mensium ; *
HISTORIÆ NATURALI, -	
MEDICINÆ LEGALI, - -	
CHIRURGIÆ CLINICÆ, -	
CHIRURGIÆ MILITARI, -	

Tertio, Præter curriculum Medicinæ Clinicæ jam præscriptum,—alio insuper anno,—per sex saltem menses, Nosocomium quoddam publicum hic aut alibi se frequentasse, ubi octoginta ægri decumbere solent, et curationi a Medicis vel Chirurgis ibi institutæ adfuisse.

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* Medicinæ autem Clinicæ, et Chirurgiæ Clinicæ, uno eodemque tempore operam dare non licebit.

III.

Nemo Gradum Doctoratus consequatur, qui non, unum saltem annum, in Academia Edinburgena, modo jam præscripto, Medicinæ studio impenderit.

IV.

Quicunque honores Medicinæ ambierit, ante diem XXIV^UM^ Martii, de consilio suo Facultatis Medicæ Decanum certiorem faciat, et illi tradat,

1. Autographum his verbis, "Ego ———————— gradum Doctoratus in Medicina ambiens, serio et sancte Medicinæ Professoribus et Almæ Academiæ Edinburgenæ assevero, et hoc scripto meo testatum cupio, me unum et vigesimum Ætatis Annum jam complevisse (vel, si ita res se habuerit, ante diem proximum solennem esse completurum), et me esse liberum, scilicet nullius Chirurgi, aut Pharmacopolæ, aut alius cujusvis artificii Magistri servitio addictum, ut Discipulum, vel Tironem, vel Ministrum, qualis Anglice dicitur *an Apprentice;*"
2. Descriptionem Studiorum suorum, tum in Literis et Artibus, tum etiam in Medicina, atque de his testimonia;
3. Dissertationem Medicam Inauguralem, a seipso lingua Latina compositam, ut Professor aliquis, a Decano designandus, eam perlegat, et perlectæ scriptam suam testificationem apponat.

V.

Ante quam tentamini de re medica subjiciatur Candidatus, Facultati Medicæ, conventu speciali et privato ostendat, se lingua Latina jam satis esse doctum: quod si non ita sit, exercitationes pro Gradu Doctoratus, hac lingua præcipue peragendæ, non habeantur. Si autem Professoribus de hac re satisfaciat, tunc Quæstio vel viva voce vel scripto, statim habenda est, de variis quas Scientia medica complectitur disciplinis.

VI.

Si quis, hac quæstione privatim habita, Candidatorum numero retineri dignus non existimabitur, duabus saltem ex supradictis (Sect. II.) disciplinis, sub Medicinæ Professoribus in hac aut alia Academia supra definita, per alium insuper annum operam det, antequam exercitationes iterum subeat.

VII.

Si Candidatus, quæstione privatim habita, promoveri merebitur, illi statim tradantur DUÆ MORBORUM HISTORIÆ, cum

QUÆSTIONIBUS SUBJUNCTIS, ut, commentis lingua Latina scriptis, illas illustret, his commoda responsa reddat; tum Historias ita illustratas, una cum Responsis suis, post decem dies Professoribus proponentibus tradat, atque eadem, die VI^TO^ Julii, coram Facultate Medica defendat.

VIII.

Candidato, si, post primum periculum factum, probatus fuerit, Dissertationem suam inauguralem prelo subjicere liceat, nec tamen imperetur: Dissertationis cujusque excusæ quadraginta exemplaria, Facultatis Medicæ Decano, die VI^TO^ Julii, tradantur.

IX.

Si Candidatus iterum a Medicinæ Facultate fuerit probatus, ejusdem Facultatis Decanus quæ gesta fuerint SENATUI ACADEMICO renunciabit; cujus approbatione et auctoritate Candidatus Dissertationem suam in Comitiis Academicis, die XI^MO^ Julii, lingua Latina, defendere, jubeatur: Tum, si Senatui placuerit, laboris et studiorum præmium, summos in Medicina Honores, GRADUM nempe DOCTORATUS, more solenni, XII^MO^ Julii, consequatur.

X.

Facultas Medica, semper intra Academiæ Pomœria, Hora Decima ante meridiem, diebus supradictis, conveniet. Et si quis Candidatus, sine gravi causa, hora abfuerit statuta, huic, occasione neglecta, nec ad ulteriora pericula progredi, nec Gradum Doctoratus hac vice assequi, licebit.

N. B.—*Hæc sunt Statuta de studiis, pro Gradu Doctoratus, omnium qui posthac ad Medicinæ studium se conferant. Eorum autem qui jam Medicinæ studiosi sunt, studia dirigenda sunt Statutis Solennibus jam editis.*

GULS. P. ALISON, Med. Theor. Prof. Adj.
Facult. Med. Dec.

E Tabulis Academiæ, jubente Senatu Academico, describenda curavit

ANDREAS DUNCAN jun. Mat. Med. Prof.
Acad. a Secretis, et Bibliothecarius.

Data Edinburgi, in Acad. Jac. Reg.
Anno Salutis Humanæ MDCCCXXV.

The alterations in the *Satuta Solennia* of this University, in regard to Medical Graduations, which have been for some time past in contemplation, have now been finally arranged and announced by the Senatus Academicus, and will be applied to all who shall commence their medical studies after this date; although, according to the usual practice of the University, they will not be imperative on such gentlemen as may have commenced their medical studies previously to their promulgation.

It may be gratifying to our readers to learn, that these changes have not been thought necessary in consequence of any deficiency in the general attainments of the gentlemen who have recently graduated at this University. On the contrary, we are assured that it is the opinion of all who have access to information on the subject, that there never was a time when medical science was cultivated with so much zeal and assiduity by the students of this school, or when the attainments of the great body of candidates for graduation were so high; and that the Medical Professors have recently received from various quarters, the most gratifying assurances of the estimation in which the Edinburgh degree is generally held.

But it is also notorious, that the course of study actually pursued by the great majority of graduates at this school, has for a long time past greatly exceeded, both in duration and extent, that prescribed for them by the statutes of the University. It is not, because the candidates do not, in general, possess the amount of knowledge which the Professors expect, but because the statutes do not prescribe a course of study sufficient for the acquisition of the knowledge which they ought to possess, and generally do possess, that the alterations now made have been thought expedient.

When the prescribed course of study is much short of the usual practice of the candidates, it is obvious, that, to the great majority of these gentlemen, the possession of a degree, granted under such rules, does not mark so strongly as it ought to do, the amount of time and labour which they have bestowed in qualifying themselves for it;—and on the other hand it must happen, that to a certain number, fortunately comparatively small, who do not voluntarily make up for the deficiency in the prescribed course of study, an undue encouragement is held out, to aspire to the highest honours in medicine, without such a degree of preparation as, at the present day, ought to precede the acquisition of them.

In fairness to the students, therefore, as well as from a regard to the character of the medical school, and the interests of the public, it seemed manifestly expedient, and was accordingly the decided wish of the medical profession, that the course of study required by the University should correspond more nearly to that which the practice of the best informed students had shown to be necessary for a complete medical education. And if the Regulations now enacted still fall short of what such candidates will voluntarily impose on themselves, it is because the members of the University are well aware of the advantages which medical students derive from various extra-academical studies, and of the propriety of leaving room for them, in the arrangement of the course they prescribe.

The new regulations require, that every candidate for graduation should, in general, spend six months at least, of each of four years (instead of three as formerly), in the study of medicine. The only real exception to this is in the case of those whose previous general education has been ample, and who, before commencing their medical studies, have obtained the degree of A. M. or an equivalent degree, from a University. But one of the four years of medical study is allowed to be spent either in a University or elsewhere, provided that the student, in the latter case, attend for six months or more, the practice of some great hospital. And farther, those who, after passing the necessary examinations, have already served as medical officers of the Army or Navy, or in the service of the East India Company, are excused from one of the four years of academical study.

The new regulations likewise make it incumbent on candidates, in addition to the courses of lectures formerly required, to attend one on Midwifery, and the diseases peculiar to women and children;—and farther, to study two at least of certain other specified branches of medical or accessory sciences, which are taught in this and most other universities; but, in consideration of the great variety in the previous education, and in the future prospects, of medical students at this school, the selection of these last branches is left to themselves.

In every case, it is made incumbent on candidates for graduation, to attend the practice of some general hospital during six months or more, not of one only, as formerly, but of each of two of the years of their medical studies.

The only other alteration of importance, is one which has been made the subject of a good deal of well-meant, but misapplied criticism. In the present extended state of medical science, the circumstance of every part of the examinations being conducted in Latin, by increasing the difficulties and embarrassment even of well informed candidates, has appeared to the Medical Professors, to present a very frequent and serious obstacle to strictness of examination. With the view, therefore, not, as has been absurdly enough supposed, of lowering the character of the examination in regard to Latinity, but of raising it in regard both to science and practice, they have obtained from the Senatus Academicus permission to dispense with the use of the Latin language (as is done at Cambridge), at their own discretion, during a part of the private examination;—it being specially directed, however, that that examination shall always commence with a strict trial of the candidate's proficiency in Latin, and shall not proceed unless the result of that trial is satisfactory. The other examinations continue in Latin exclusively, as regulated by the former *Statuta*.

No doubt it may be said, that it will depend on the strict observance of the Regulation now mentioned, by the Professors, whether the proficiency of the candidates in Latin shall be kept up in future years. But it is equally clear, that the strictness of the examination in every other respect rests, and must ever rest, on the very same security. It has always been understood, that the Examiners for medical degrees were bound to satisfy themselves of the proficiency of candidates, both in Latinity and medical science; and it can scarcely be apprehended that the public, who have so long reposed confidence in the conduct of these Examiners, will take offence at a Regulation which permits the division into two parts, of the duties held to be incumbent on them, only in order that both may be more faithfully and satisfactorily performed.

We subjoin a statement of the numbers of Medical Students who have matriculated in the University for five years past, by which it will be seen that they have been uniformly increasing.

Medical Students in

1820–21,	754
1821–22,	817
1822–23,	867
1823–24,	870
1824–25,	905

A considerable number are in attendance on the medical classes who have not matriculated; and 25 or 30 may be expected to matriculate in the course of the Summer Session, who will be added, as usual, to the number last quoted, in completing the lists of the University for 1824–5.

Biographical Sketch of the late Dr Chisholm.—Dr Chisholm received a classical education at the Academy of Inverness, North Britain, and from that proceeded to King's College, Aberdeen, where he took the degree of A.M.; and had his medical education at the University of Edinburgh, where his first attendance was in the session of 1772-3.

He entered the army as surgeon to the second battalion of Feare's Highlanders, afterwards the 71st regiment, in November 1775; in which corps the venerable and learned Dr Jackson was assistant surgeon. That regiment, with the 42d, sailed from Greenock in April 1776; and the sick of both regiments was put under the charge of Dr Chisholm during the passage to America, where he continued to serve with the 71st regiment during the whole revolutionary war.

On the peace of 1783, he was placed on half-pay, when he went to the island of Grenada, and settled as a physician at St George's, the capital of that colony. In the course of that year, he was appointed assistant-surgeon to the Ordnance of Grenada, by his friend Dr Rollo, then at the head of the Ordnance Medical Department. He remained at Grenada highly esteemed and respected, both in his profession and as a member of society.

He returned to England in the summer of 1794; and in the course of that year married Miss Eliza Cooper of Inverness. In the following year he received the appointment of Surgeon-general to the Ordnance; on the expedition under General Sir Ralph Abercromby in 1797, that of Inspector-General of Ordnance Hospitals in the Windward Islands. When the object of that appointment was effected, namely, the visiting and new regulating the Ordnance Hospitals in the different islands, the Board of Ordnance judged it no longer necessary to continue the appointment, and wished him, therefore, to return to his former station, in place of which, he solicited for leave to retire on half-pay, which, on being granted, he did; and as a proof of their approbation of his services, he was allowed the half-pay of 10s. per day in his retirement, with a most complimentary letter from the Master-General and the Board of Ordnance, for his services.

Dr Chisholm was one of the oldest Fellows of the Royal Society, was a member of the Medical Society of New York, of the Philosophical Society of the same place, of the Societas Naturæ Scrutatorum Helvetorum, and the Societé de Physique and d'Histoire Naturelle of Geneva, the Wernerian Natural History of Edinburgh, the Medical Societies of Aberdeen, Inverness, &c.

He was buried at Chelsea, where repose the remains of Mead, Sir H. Sloane, Cheselden, &c. Dr Chisholm has left a widow, four daughters and a son, who is a surgeon in the Company's service in Bengal, and is said to be a distinguished scholar and ornament to his profession.

Besides contributing liberally to the various periodical publications connected with his profession, especially those of Edinburgh, Dr Chisholm was the author of works of great interest.

1. An Essay on the Malignant Pestilential Fever, introduced into the West India Islands, from Boullam on the coast of Guinea, as it appeared in 1793 and 1794. 8vo. London, 1795.—*See* Medical Commentaries for 1795.
2. A Letter to John Haygarth, M.D., exhibiting farther evidence of the infectious nature of the fatal distemper in Grenada in 1794–5–6, and in the United States of America from 1793 to 1805. 8vo. London, 1809.—*See* Edinburgh Medical Journal, Vol. VI.
3. A Manual of the Climate and Diseases of Tropical Countries. 8vo. London, 1822.—*See* Edinburgh Medical Journal, Vol. XIX.

On the Appointment of Chaplains to Lunatic Hospitals, from a Correspondent.—I mentioned in my last, that we have had a Chaplain appointed to our Lancaster Lunatic Asylum (with a salary of 300*l.*) for three years, as an experiment. From what as yet has passed, I am unable to give a decided opinion of the utility or efficacy of this experiment. I confess myself to be incapable of forming a judgment of the religious duties which our Creator expects from creatures, whom, in his wisdom, he has deprived of their reasoning faculties. And I cannot but think there is much truth in the observation which has been made, "That when a patient is fit for religious instruction, he ought no longer to be confined in a lunatic asylum,"

FOREIGN.

Cæsarian Operation Successfully performed in a Case of Extra-uterine Pregnancy of some years standing, during which period the woman became pregnant in the usual way, and was safely delivered. By Mr Ruth, *Surgeon of the district of Rosenberger in Upper Silesia.—(Graefe and Walther's Journal*, Part III. Vol. VI.)—Charlotte Wisatzy, æt. 36, native of Bodland in Upper Silesia, of a strong constitution, and the mother of six children, of which the youngest was five years old, became pregnant, according to her account, about three years and three quarters ago. She became larger in body than usual, and could also distinctly feel the motions of the fœtus; in short, she was perfectly convinced of her being with child. Soon after her pregnancy, she began to be affected with frequent pains in the bowels, a symptom which she had not had with her former children. These, at the commencement, were slight, but afterwards became almost insupportable. During the whole time of her pregnancy, the menses did not stop; the only alteration that took place in the uterine secretion was, that every sixth or eighth day, and after any great exertion, clots of coagulated blood mixed with mucus, came away. The breasts had not undergone any change. With the exception of the pains in the bowels, her health had not suffered; and at the seventh month of her pregnancy, was sufficiently well to be able to dance at a festival.

Between the fifth and sixth week before the time at which she expected to be delivered, when engaged one day by the side of a river, in washing, she suddenly bent forwards to catch one of the cloths that had been carried off by the stream,—instantly she heard something burst with rather a loud noise, and at the same time, a round tumour of the size of two fists, appeared a little below the navel, on the right side. At the appearance of this, she felt very faint, and was obliged to be carried home by some men, where she remained for near five weeks confined to her bed, with a dull pain in the lower part of the bowels. Regular labour pains came on, and delivery was expected to have taken place by the midwives and surgeon in attendance; but they gradually went away, leaving the woman only in a weak state.

After this, she was able to go about her household affairs as usual; and for two years and a quarter, felt no particular inconvenience. The menses appeared regularly, but were always deficient in quantity. In this state she again became pregnant; and up to the seventh month, remained pretty well, being able to go about her ordinary affairs; but from this period the abdomen became unusually large and discoloured, and felt extremely heavy whenever she moved. Her strength failed so much, that she was frequently obliged to lie down during the whole day. At last she was delivered of a fine healthy child. This the mother at first suckled herself, but, after a fortnight, it was obliged to be removed from her, on account of its mouth being so bad, that it could no longer suck. Soon after the removal of the child, the milk suddenly went back, the mother became excessively weak, and was unable to get out of bed; she was extremely thirsty, had frequent diarrhœa and hectic fever, which were hastening the unfortunate sufferer to the grave. There was general emaciation, with the exception of the abdomen, which remained large. About an inch below the navel, a tumour of the size of a hen's egg appeared, which occasioned so much pain in the whole of the abdomen, as to deprive the patient of rest. In this tumour, which was soft to the touch, there were two small openings, of the size of a pin's head each, through which some purulent matter discharged itself. A surgeon was sent for, who, conceiving it to be an abscess, laid the two openings into one with a lancet, when a quantity of matter and hair came out; and, to his astonishment, on introducing the finger, he felt something hard like bone, which led him to suppose that there was a fœtus there. This, together with the general deranged state of the patient's health, led him to give it as his opinion, that the woman could not survive more than a few days. At this time I was sent for, and found the woman in the situation above described. The mouth of the uterus was firmly closed, the abdomen had the exact appearance of that of a person at the full time of pregnancy; and through the opening in the integuments, a little below the navel, the child could be distinctly felt. Under these circumstances I determined on the performance of an operation, which afforded the only chance of recovery, and by which the patient might be relieved of the burden she had carried for more than three years. On the 31st of December 1822, at 8 *p. m.*, I proceeded to perform it in the following manner.

Operation.—The bladder and rectum having been previously emptied, the woman was placed on a bed, with her feet supported on a stool. I then commenced my incision about two inches and a quarter above the umbilicus, just on the linea alba, and carried it to the extent of an inch and a half in length, and in depth till I reached the peritoneum, which I then divided, taking the greatest possible care not to touch the transverse arch of the colon, which was immediately beneath. I now introduced the fore and middle finger of the left hand into the wound, with which I elevated the parietes of the abdomen, and then continued the incision in a straight line to about three quarters of an inch above the symphysis pubis, by which the abdominal cavity was completely exposed. I now saw a large well formed child lying on the right side, with the head in the right inguinal region, the back against the parietes of the abdomen in the right iliac region, and the feet bent a little towards the knees, and extending to the right hypochondrium. The left shoulder lay in the inferior part of the umbilical region, opposite to the external wound which existed in the integuments, and through which the child was first felt. I now cautiously removed the child, and traced the umbilical cord, which extended from the infant over the uterus to the left side, and lost itself in a softened mass (the remains of the placenta not yet quite converted into pus) attached to the inferior part of the omentum majus. The cord was extremely thin, and had nearly fallen to pieces. A great quantity of the pus was now soaked up by a soft sponge, which enabled me to see the uterus. It projected about two inches and a half above the pubes, was three inches and a half in its longest, and two inches and a half in its shortest diameter. It was of a pale red, and felt like an elastic bottle, and it struck me that it had not perfectly contracted since the last delivery, probably on account of the patient's weakness. Besides this, there was nothing remarkable to be observed in the uterus. The natural colour and structure of the intestines, which protruded very much, could not be well distinguished on account of the matter in which they had been so long imbedded, and which in several parts adhered to them. As keeping the parts long exposed might be attended with danger on account of the protrusion of the intestines, and the effect of the external air on them, and, as I already remarked, the breathing becoming difficult, I was obliged to abstain from all further examination, and to close the wound as soon as possible. The parts were brought together by means of a suture; strips of adhesive plaster were also applied, and over these some simple dressing, together with a wide compress; and, lastly, the whole were kept in their place by means of a bandage passed round the body. The patient was now put to bed, and the following mixture was ordered.—℞ olei amygdal. dulcium ℥ss. gummi mimosæ q. s. ut ft. emuls. cum aqua chamomill. vj. ℥ Admisce extract. hyoscyami gr. vi. tinct. digitalis ʒss. Spirit. sulph. æther. ʒi. M. D. S. sumat cochl. magnum omni hora.

The child was a girl, from 18 to 19 inches in length, well formed, and capable of sustaining life. The hair, the skin, and both eyes, were in a state of suppuration; and the left os bregmatis (os parietale) perforated in the centre, probably at the first examination. The countenance was distorted, and turned to one side, from being compressed so long, and the arms were also flattened; in other respects the child was perfect, and presented nothing unnatural.

1823, Jan. 2d.—Since the operation, the patient had not taken any rest; the pulse was very quick, small, and wiry; great thirst; tongue dry; strong cough; skin moist; urine high coloured, and mixed with mucus. The patient was extremely weak, had a diarrhœa, and the wound was very painful. I ordered barley-water for her drink, and gruel with rice or some fruit soup for her diet; the mixture was discontinued. The bandage was obliged to be changed, for there was a copious bloody discharge, and which was of a very offensive smell; the plasters were loosened, but the suture remained fast.

On the third day the diarrhœa stopped, and was followed by costiveness, which was however relieved by mild enemata. The cough was the most distressing symptom, and the quantity of mucus expectorated was almost sufficient to lead one to think that the patient laboured under phthisis. On the 11th of January the wound began to heal, and soon after the cough became less violent. On the 22d, the patient begged to be allowed to sit up in the bed; the wound was small and clean. On the 2d of February the patient got up, but as it was fifteen weeks since she had walked, and she was still extremely weak, she fell away quite faint. The uterus occasionally protruded a little into the wound, and thus retarded the cure; but by means of a bandage about two inches in width, passed tightly round the body, it was kept within the abdomen, and then the wound soon healed. The patient rapidly gathered strength, and in the middle of March was as well as ever.

Case of Cæsarian Operation by Dr Schönberg of Naples.—Salzburgh, Medicinisch-chirurgische Zeitung, May 27, 1824.—Elizabeth Hugh, twenty-eight years of age, of very short stature, and when a child affected with rickets, had for several years past been subject to very severe attacks of convulsions, and on the 7th of August 1823, towards the end of her first pregnancy, labour pains came on. At the same time she was seized with convulsions, which resisted every means I could try, and continued for thirteen or fourteen hours, wherefore I determined on delivering the woman. On a close examination, I found that the mouth of the womb was dilated, that the waters had escaped, and the head of the child was foremost, but that the pelvis between the rami of the ischia and pubes was extremely narrow, not more than two inches in width. Under these circumstances, I called in a physician accoucheur, who found the woman in this state, but had not an opportunity of ascertaining if the child was alive or not, a circumstance which was to decide whether we should have recourse to the Cæsarian operation, or the perforation of the head of the child. In consequence of the uncertainty whether the child was alive or not, and the frequency of the labour pains, we determined to wait till the following morning. August 8th.—The woman rested the whole of the night, and this morning felt considerably refreshed. In our examinations we could distinctly feel the motions of the child, which lay with the face foremost, and thus we decided on the Cæsarian operation, which was performed at two in the afternoon by H. Leuch, one of the surgeons to the hospital. An incision was made in the course of the linea alba, from about an inch below the navel to the pubes, and with a second the uterus was opened when in a state of contraction, a labour pain having occurred at this step of the operation. The fingers were then introduced, the opening in the uterus enlarged, and the placenta detached. The membranes were now ruptured, and the child in part removed from the womb; but just as the head was about to be withdrawn, the uterus contracted round the neck of the child, and it was with some difficulty that the head could be extricated. The intestines now fell forwards, and were obliged to be kept back by an assistant; the placenta was then withdrawn, but no arteries were secured, as the bleeding was very slight. The uterus was rendered as clean as possible, all the coagula being removed, and the parts were placed in their natural position. The integuments were kept together by means of sutures, and strips of adhesive plaster; and over these, compresses and a broad bandage were applied.

The child when removed was alive, since it moved, and made continued efforts during half an hour, to breath; but, notwithtsanding all our efforts, it shortly died. The woman went on remarkably well; the lochial discharge appeared in the usual quantity, and, in forty-eight days from the operation, was perfectly well.

Delivery after the Death of the Mother. By Prosector Herrmann of Bern.—On the third day after the death of a young woman, who was in the sixth month of her pregnancy, the nurse heard a loud noise proceed from the corpse. A physician was immediately sent for, who, on his arrival, found that the deceased had brought forth twins, which were inclosed in a membrane quite entire, and not in the least putrid. The placenta only appeared to have suffered from the effects of putrefaction. Notwithstanding the birth of the fœtuses, the abdomen was distended, and blue all over, putrefaction having advanced to a considerable degree.

Report of the Midwifery Clinic in Pavia, under the Direction of Professor Bengiovanni.—Omodei's Annali di Medicina. Jan. 1824.—From the Report of this institution, which is given at considerable length in this Journal, we find, that, out of 67 births, 45 were natural and easy, 12 natural and difficult, and 10 preternatural. There were 61 head presentations, a case of twins being among them, 2 feet, 1 breech, 1 face, and 3 arm presentations. The Cæsarian operation was performed twice; in one case the mother died in 13 days, in the other, 36 hours after the operation. In one of the difficult deliveries the woman made a violent effort, when the uterus gave way, and she soon afterwards expired.

Appearance of the Cholera from India, about the Mediterranean and Caspian Seas.

By Dr J. Rehman.—Hufeland's Journal, Sept. 1824.—(*Continued from the Edinburgh Medical and Surgical Journal*, Vol. lxxxii.) *Extension of the Cholera in the Russian Provinces, about the Caspian Sea, as far as Astrachan.*—We possess in Europe, respecting the progress of this disease in Persia, no, or only very uncertain, information. At least it was not mentioned in any of the Reports, that the cholera had appeared, in the summer of 1822, in the northern parts of the empire, and even at Tauris, as well as in the provinces bordering on Russia. It was only by the gazette that we were informed that it existed in some parts of the south of Persia, and that it had extended into Asiatic Turkey, through Bagdad, as far as Aleppo. Wherefore, at the time when every one supposed that the disease was existing only on the borders of the Euphrates, or in the wild deserts between Asia and Africa, we were surprised at the receipt of the following brief Report from Georgia, on the 17th of August last year (1823), dated Tiflis, July 17th. " 1. That the disease known by the name of Cholera had appeared in the month of May in the country, about the Talischinski canal. 2. That it had destroyed four men in the small fortress of Lenkoran, situated on the border of the Caspian Sea,—had extended from that place into the province of Schirvan,—and had principally showed itself in the town of Sallian, on the river Kur, where it had committed extensive ravages; and, lastly, That it had spread farther into the neighbouring countries.

The importance of this information was immediately perceived, and directly the following orders were issued: 1. That some physicians destined for the civil service are to be sent into Georgia from the Medico-Chirurgical Academy, for the purpose of treating this disease, to be under the direction of the Governor-General, and the inspection of the most experienced practitioners. This measure was rendered necessary, because, in the distant parts of the empire, there was a scarcity of medical men. 2. That a meeting of the medical council be summoned, for the purpose of drawing up some observations and instructions * respecting this disease, and which were to be sent to all the medical men in the provinces, to inform them of the nature of the complaint, and the treatment it required. This measure appeared to be called for, since it was not to be expected, that at a distance from all literary medical societies and connexions, they would be acquainted with the characteristic features of the disease, or the therapeutic measures which it requires.

The medical department at Tiflis has given strict injunctions to the medical men accurately to ascertain the origin, course, and mortality of the disease, both in Persia as well as in the Russian provinces; but principally to investigate in what manner it has been propagated from the Persians to the inhabitants of our country (Russia). It has also ordered, that particular attention be paid to see whether the cholera propagates itself with the wind, or if the changes of the weather have any influence on it; whether the symptoms of the complaint are more or less severe, and there is any difference between the mortality in Persia and India; and, lastly, by *post-mortem* examinations, to explore the causes, and trace the effects of this unaccountable malady.

Accounts from Tiflis, dated the 10th of May, state, that the cholera which showed itself in Persia in 1822, and which, till lately, had been kept away by the lofty mountains which separate Georgia from Persia, had this spring appeared in several parts on the other side of the mountains, even as far east as the borders of the Caspian sea, in the Persian province Gilhan, and in several of the neighbouring Russian provinces. During very warm and dry weather, and the prevalence of an easterly wind, it broke out in the month of May in the Russian province Talaschin, and shortly after in the plain of Magel, in a village of the Cravamkis district, where it destroyed ten men. Then the disease appeared in the small town called Lenkoran, where four men died of it. From the 22d of June to the 1st of the following July, no one died of this complaint in the neighbourhood of Lenkoran, neither among the soldiers, nor among the inhabitants; but, on the 1st of July, it broke out again in the village of Kurgelan, five Russian miles from Lenkoran, and destroyed, in five days, seven persons. In the middle of July it disappeared entirely from the neighbourhood of Lenkoran. From Sallian the disease extended, sparing this time the citadel Baku, which is bounded to the south by mountains along the Kur, in the valleys of Schirvan, where it carried off several of the inhabitants; and, on the 13th of August, it broke out in the neighbouring mountains, and destroyed, in a short space of time, forty persons. In several other places the cholera committed the like devastations, and unfortunately still continues to exist in the Russian provinces.

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* *Vide* page 435.

Cursory Observations on the Treatment of the Disease called Cholera Morbus, composed by the Medical Council of St Petersburg, August 24th, 1825.—(Translated from the Russian, Hufeland's Journal).—This peculiar disease, which consists in constant vomiting and diarrhœa, is not uncommon in the countries far south, and in 1817, it commenced to rage epidemically in India. It first showed itself in Jessore, about a hundred miles from Calcutta, and then gradually extended to that place, carrying desolation wherever it appeared. After this it showed itself in the army at Mundellag and Yubulpore, and, in September 1818, broke out in Bombay. On the other side it spread to the coast of Coromandel, and carried off several thousand inhabitants; then it appeared at Ceylon, Siam, and Malacca; afterwards in China, and, lastly, in the Isle of France, a distance of three thousand miles from India. In 1821 and 1822, the disease committed the most dreadful ravages in Asia Minor, principally among the Persian army, which was encamped about Bagdad. It is also very probable that it has extended through Persia to the territory of Schirwan. The wind appears to have no effect in retarding the progress of the complaint, and it was particularly remarked, that it extended from Bengal to the Deccan, against a southwest wind, which continued to blow there for some months.

Although it is found, that all who have communication with persons labouring under this complaint, are not attacked with it themselves, still it is extremely probable that the disease spreads by contagion. In the Isle of France, where so many persons died of the cholera, only twelve Europeans perished, since, on its first appearance, they quitted the place, and had recourse to all possible preventive means. Neither the change of weather, nor the temperature of the atmosphere, have any effect in stopping this dreadful malady, although experience proves, that persons living in damp places, bad houses, and of broken up constitutions, are the most subject to this disease. A great number in the English army in India perished from this complaint, before the troops changed their station and encamped in some elevated station. It has been generally remarked, that those parts where rice and luxuriant herbs grow, where, after the overflowing of the Ganges and the Googl, there is much stagnant water, and in woody situations, the complaint made the most extensive ravages, and that the lofty parts were spared.

Symptoms and Characteristic Marks of the Disease.—The peculiar symptoms of this disease are, a constant vomiting and purging of watery and sometimes viscid slime; generally speaking, it is not mixed with bile, wherefore the name Cholera is improper. According to Barrells, there frequently exist from the beginning great weakness, with flying pains, a sense of numbness in the extremities, pain in the head, and extreme thirst. Then nausea and vomiting supervene, and the patient is affected with such violent cramps, that one person can scarcely keep him still. Sometimes the disease begins with purging, without any pain, and, at the same time, or shortly after, vomiting of watery slime comes on. The patient then experiences great weakness; the pulse sinks; the extremities and the surface of the body become cold; the eyes fall in, are half closed, and bloodshot. There is great anxiety depicted in the countenance, a burning heat in the stomach, and extreme thirst. The diarrhœa increases, and the patient becomes so restless and anxious, that he can scarcely remain quiet sufficiently long for the pulse to be counted; the pulse at this time, also, is very small. The cramps or spasms now commence, and generally proceed from the toes upwards; when they attack the breast, they occasion acute pain, and great difficulty of breathing. Cases have been observed in which the disease commenced with cramps, and where the vomiting and purging were secondary.

In the island of Ceylon, Davy observed that the blood, both in the arteries and veins, was of a dark colour, and that the breath of the patients contained a third less of carbonic acid than that of healthy persons. Finlayson states, that, in the island of Ceylon, several persons died in the course of a few hours of this disease, without having cramps, or any of the characteristic symptoms of the complaint. It was also observed in the army, that, at the time of this epidemic, a large number of cattle suddenly perished, without any assignable cause whatever. All hopes of saving the patient are quite gone, when the coldness on the surface extends to the scrobiculus cordis; when the tongue becomes cold, and a profuse cold sweat covers the whole body, whereby the skin in the palms of the hands and soles of the feet becomes wrinkled. Generally, at the approach of these symptoms, the cramps leave; and these, together with the pains, entirely disappear before death; nay, even when the pulsation of the heart is no more to be felt, the patient feels himself better. Corbyn has, however, mentioned cases in which, to the last moments of their existence, the unfortunate sufferers experienced the most excruciating agonies, groaned, and threw themselves about on the ground; this was particularly observed where the disease continued to the third day. When, on the contrary, the spasms have disappeared; when, with the vomiting and purging, there is no more watery slime, but some bile, and the coldness on the surface does not increase, then some hopes of the patient's recovery may be entertained.

On examination after death, if the disease has continued more than twenty-four hours, the stomach and intestines are found dilated with flatus, and their internal surface covered with mucus. Neither in the stomach nor in the small intestines, is there any bile to be found. The vessels of the liver and the intestines are frequently gorged with blood, and the gall-bladder distended with black bile; the muscles flaccid, and the lungs fallen together.

Treatment.—This formidable disease, which does not last beyond the third day, and is often fatal within twenty-four hours, requires the most active treatment from the physician. The Marquis of Hastings made the treatment recommended by Corbyn generally known throughout the army, and which subsequent experience has proved to be the most efficacious. It consists in giving the patient, immediately on the approach of the disease, 20 grains of calomel in powder (and not in the form of pills), and then a mixture of 60 drops of laudanum and 20 drops of oil of peppermint in two ounces of water. In the first stage of the complaint, the blood leaves the surface; wherefore the body must be rubbed with warm spirits, and the patient put in a warm bath, covered with warm clothing, and also take cordial medicines. The quicksilver and opium must, if circumstances require it, be repeated in an hour, or later, either in the same, or an increased dose. If the physician be called late to the case, the patient is frequently not able to keep the medicines on the stomach. Under such circumstances, Wallace gave two grains of opium with fifteen of calomel, mixed with two drachms of honey, which he puts into the mouth by degrees. The patient can generally take the medicine in this form, and afterwards usually sleeps. If the symptoms return, the dose must be repeated. In the Isle of France, the same medicine is used, but in smaller doses, and consequently with less success. The French physicians employ, instead of it, bitter salts, in two drachm doses; but, from their Reports it appears, that in this one case, out of 440 patients, 194 died; whilst in the other, of 135, there were 95 fatal cases. Taylor and Kinnys advise the use of counter-irritants to the abdomen; and, on account of the slow operation of the emplastrum lyttæ, they recommend the skin, just at the scrobiculus cordis, to be besmeared with sulphuric acid; and, as soon as the desired effect is produced, that the part should be washed with water, or, if necessary, with a solution of potash. Millwood, in the commencement, gave a drachm of calomel, with five grains of James's powder, and, in two hours after, ten grains of calomel, with the same dose of James's powder. For the patient's drink, he allowed sweet spirits of nitre. If the purging stops, the skin becomes warm and moist, when he gave the common magnesia, four scruples to the dose, which, according to his account, never caused vomiting, but only purged the patient two or three times. The same author also states, that early blood-letting is a very efficacious remedy in this disease; but it often happens that, from the presence of the spasmodic contractions, the blood will not flow. Tytler recommends pure opium instead of the tincture, since he observed that the tincture, instead of stopping the vomiting, sometimes increased it: on this account, Bayle recommends the use of the tincture of opium in clysters in this disease. In general, the English physicians, who have observed this epidemic in India, lay great stress on calomel and opium as the principal remedies in this complaint, and regard all other means merely as auxiliaries.

In consequence of the existence of this disease in some of the Russian provinces, the Council has drawn up a body of instructions for the direction of the young physicians who are gone expressly to observe and treat this malady. The treatment recommended is that employed by the best English practitioners, and consists in the administration of large doses of calomel and opium, early blood-letting, if reaction has taken place, the warm bath and warm clothing, together with counter-irritants to the surface, and the use of opiate injections. When the vomiting has stopped, they advise a gentle laxative, such as carbonate of magnesia, or the cold drawn castor-oil to be given; and, from the commencement of the complaint, the patients are to be put under quarantine orders, and to be separated as much as possible from those that are well. This last order is given from a conviction that the disease is contagious; a point, however, which the Council has given strict orders to be particularly investigated.

Pathological state of the Eyeball and its Coats during the Course of the Ophthalmia of new born Children, called Ophthalmia Neonatorum, by Dr F. A. Ammon of Dresden. (From HECKER's *Litterarische Annalen der gesammten Heilkunde, Feb.* 1825.*)*—The observations of most medical men who have written on the ophthalmia of new born children, agree that the seat of this complaint is confined to the lids, viz. its glands and conjunctival lining, and that the eye itself was but rarely sympathetically affected. Later writers on this disease, among whom Saunders ought particularly to be mentioned, have directed their attention to the eyeball, and have pointed out the true course which the inflammation follows. They have shown how the cornea is affected, that in those parts which are seriously diseased it loses its vitality, and that there the lamellæ separate in a stellated form. But the pathology of the coats of the eye during this inflammation is so little understood by us, that to the present time it has never been described. During my stay in Paris in 1822,* I obtained from Professor Breschet, surgeon to the *Hôpital des Enfans trouvés*, permission to observe this complaint in the numerous children which were admitted into this institution. Among these, several died from other diseases which supervened at the time they had the ophthalmia, so that I was able to make the most accurate *post-mortem* examinations, and examine the state of the eye in every stage of this complaint.

It not unfrequently happens that the cornea remains clear and unaffected, whilst the remainder of the eye is inflamed in the highest degree, and presents one granular appearance. When the cornea, however, also becomes affected, this appearance is not to be observed on it, but vessels are to be seen from all sides proceeding towards its centre, which increase with wonderful rapidity, and at last secrete lymph or pus, which is more frequently lodged on the inner than the outer surface of the conjunctiva corneæ. During the secretion of coagulable lymph, or the production of true pus between the conjunctiva corneæ, and the cornea itself, is the foundation laid for those alterations in the structure of the cornea, which show themselves in the course of the ophthalmia, such as spots on the cornea, leucoma, death of a great part or perhaps the whole of the lamellæ of the cornea, by which an opening is made in it, and protrusion of the iris or atrophy of the globe takes place. This formation of new vessels, or the repletion of those which before carried a colourless fluid with red blood, is not to be observed only on the conjunctiva corneæ, but is to be found even in a higher degree between the conjunctiva sclerotica and the sclerotic, especially at that part of this coat where the sheath of the nervus opticus terminates. These extremely tortuous vessels are to be found partly in the fine layers of cellular membrane, which unite the conjunctiva and sclerotic, but also in the sclerotic itself, nay, more, they not unfrequently surround, in the most extraordinary manner, the nervus opticus, as far as its entrance into the orbit. The optic nerve was found in all the cases, as far as it was enveloped with cellular tissue, soft and bloody; the lachrymal glands were always sound. Although these vessels are to be found in considerable numbers on the outer surface of the sclerotic, yet they are much more numerous on its inner surface. We often find when the disease has attained a high degree, that the inner surface of the sclerotic is completely covered with these vessels, so that they appear almost to form a new membrane. This membrane or convolution of vessels, springs, as it were, from one point; the vessels proceed from one focus, then divide and form themselves into a circle. On examining them with a magnifying glass, one very easily perceives that a large vessel from the inner side of the sclerotic, most decidedly anastomoses with the newly formed blood-vessels from its outer surface by one branch which penetrates the sclerotic, and that thus the newly formed blood-vessels on both sides exactly correspond. Professor Breschet and myself repeatedly succeeded in completely separating this membrane without any very great trouble. When separated, they appear like coagulable blood; but, with a magnifying glass, the different vessels can be easily distinguished. Lastly, should this membrane be merely the cellular tissue between the sclerotic and choroid, although its easy separation in part proves the contrary, still there remains the red colour of these coats arising from a repletion of the vessels with blood, which is a very remarkable and highly important pathological appearance.

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* Dr Ammon has published a work, entitled "Parallele der französischen und deutschen Chirurgie nack Resultaten einer in den Jahren 1821 und 1822, gemachten Reise," in which the part relating to the Diseases of Eye is particularly well treated.—*Ed. of E. F.*

If we examine more closely the back part of the cornea, the different situations of its lamellæ, we shall find several deviations from the natural state. A constant appearance which we observed, was a looseness of the lamellæ of the cornea, so that they would be easily separated from one another. The cornea was very frequently tinged with a red colour, without its transparency being destroyed, which disappeared only after long maceration, a circumstance which reminded me of the case mentioned by Mauchart, † of a widow, who laboured under an attack of jaundice for several weeks, and in whom the *cornea* of both eyes was quite yellow. * It deserves to be remarked here, that the red colour of the cornea was only to be perceived when this coat had suffered in its structure, as by the death of its lamellæ, effusion of pus, ulcers, &c. When the red colour of the cornea was present, we always found blood-vessels, or effusion of lymph, or pus, in its lamellæ. In cases where the cornea was perforated, the form of the opening was always round, and this was so smooth and clean, as if it had been made with a sharp knife.

In the course of our examinations, we found convolutions of vessels similar to those we have described above, on the inner surface of the choroid, between it and the retina. When these were present, the choroid was always found considerably loaded with vessels (*gefassreichen*), as is known to be the case in the fœtus and new born child, and there were also numerous vessels running parallel to the choroid; which, however, only extended themselves to the corpus ciliare. On the corpus ciliare, could be distinctly seen with the naked eye, a new zone of vessels, and from the ciliary body proceeded the minute capillary vessels, along the uvea, so that the uvea was quite covered by them. We very frequently observed on the inner surface of the choroid, extravasated blood, which in some cases was considerable, in others slight. *True inflammation of the choroid I could never discover;* since this coat was always loaded with vessels, and coated with blood, in those children which had suffered from ophthalmia, as well as in those new born children which had never laboured under this complaint. In this point, the observations of former physicians agree. † In none of the numerous cases which I examined, did I ever find any effused coagulable lymph, or the least particle of pus on the choroid, or any thickening or disorganization of this coat. The extravasation of blood between the choroid and retina, cannot be considered as a pathological appearance. The extravasation, however, between the retina and vitreous humour, must be viewed in a different light. This consists of thin lamellæ of coagulated blood, which is most apparent at the point where the corona ciliaris is joined to the lens and vitreous humour, arising from the zone of vessels described above, and from which the blood is exuded. The extravasated blood between the retina and the corpus vitreum, proceeded from the numerous vessels which were on the inner surface of the retina. On examining the retina of a sound eye, and its arteria centralis, together with one taken from an eye which had been attacked with inflammation, it was very apparent, at first sight, how much more numerous the vessels were in the latter than in the former. Thus, lastly, there remains the red colour of the nervous mass of the nervus opticus, so far as it was enveloped in its neurilema. This redness existed in several degrees; sometimes it was of a rose colour, at other times it was of a dark red; but it must be observed, that in certain situations, all the parts of the eye, healthy as well as diseased, had this red appearance. We have seen that the different membranes of the eye are thus sympathetically affected; it remains now to be ascertained, whether the humours in the internal part of this organ also suffer from this complaint? The following results will, I think, throw light on this important question.

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† Commemorat. Mauchart in dissertat. de tunicâ cornea. Vid. Reuss. Collect. dissert. Tubingens. T. ii. § 20.

* Vid. etiam Haller Elementa physiol. T. V. p. 559.

† J. Godofred Brendel, Professor Gottingens. Fabrica oculi in fœtubus abortivis observata Gotting. 1752. 4. In Opusculis mathematici et medici argumenti ed. Wrisberg. Gotting. 1769. 4. Jean Petit also, in the history of the Royal Academy of Sciences at Paris (1726 and 1735), speaks of the different colours of the choroid in different beasts, and in the various ages of man.

In the eyes of those children which had been attacked with the ophthalmia, we very frequently found the hyaloidea of a blood red colour. In order to be convinced that this was no opitical delusion, the vitreous humour, together with the lens, was cautiously placed in fresh water, and allowed to remain in it several days. But it still retained this colour, which, however, did not affect its transparency. But as the hyaloidea began to separate and become opaque, it assumed the colour of opal, and, lastly, disappeared. Also on the posterior surface of the corpus vitreum, numerous minute vessels were to be seen, but not a single branch could be observed extending to the posterior capsule. When the hyaloidea possessed this red appearance, the capsule of the lens was also observed to partake of it also; yet it very frequently happened, that the capsule of the lens was opaque, which was never the case with the hyaloidea. When the lens itself was affected, it was sometimes transparent, and of a weak red colour; at others white and opaque. Respecting the colour, or even existence of the HUMOR MORGAGNI, I must confess that, after repeated investigations, I was not able to arrive at any satisfactory conclusion. The question now comes, respecting this red appearance of the hyaloidea and capsule of the lens, whether it was either the result of inflammation, or of long contact with the extravasated blood, whether it was an effort of Nature in the formation of the eye in the fœtus, or whether an occurrence which took place after death? In support of the first point, I will adduce one case, although, I fear, not a very strong one. I once found, in an eye which had become atrophic from acute ophthalmia, and in which there was considerable prolapsus of the iris, that the whole of the corpus vitreum, without the exception of a single point, had the red appearance which we have described as often existing in the hyaloidea. In this case, the corpus vitreum was quite red, and changed into a granular-like mass. On its surface also were numerous points of pus, and a considerable number of blood-vessels. In opposition to this, I certainly never found in the eye, where the conjunctiva and cornea had undergone considerable disorganization, and the hyaloidea itself was red, the least effusion of coagulable lymph, or pus, on this membrane, or any alteration of its structure. But, from the peculiar nature of this membrane, and its delicate texture, no analogy perhaps ought to be drawn from this circumstance. If we admit, that the red colour of the vitreous humour and the capsule of the lens, can arise from the absorption of blood, as we know that the eye, in icterus, becomes yellow from the absorption of bile, this appearance then might be rather attributed to the second mentioned cause than to inflammation. It is, however, most probable that this red appearance of the hyaloidea and the capsule of the lens, is an effort of Nature (evolution's act), in the formation of the eye. On examining the eye, at an early period, in the fœtus and new-born child, we find the same appearance, a circumstance mentioned by several anatomists. * We often

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* Haller (Bibl. Anatom. T. II. p. 305), quotes, from GOTTFRIED BRENDEL's work, " Fabrica Oculi in Fœtubus Abortivis Observata," Gott. 1752, the following passage. " Lentis crystallinæ corticem exteriorem rubere, aliquantum et vitreum corpus, tum retinam.

meet with the vitreous humour red in the sound eyes of new-born children, but then there is wanting the effusion of blood between the retina and the hyaloidea, and the other coats of the eye in particular. That a redness of the lens, from congestion of blood to the head, even in adults, and that this appearance may be regarded as a pathological change, has been shown by several modern writers. Thus we read in a Russian publication,* that, after the repeated exhibition of an emetic, the crystalline lens of each eye became red, without the appearance in any other respect being changed. It can only be by numerous and accurate examinations of the sound as well as unsound eyes of new-born children, that we can arrive at any certain results. We must not here omit to state, that in all those eyes in which the corpus vitreum was red, the pigmentum nigrum appeared to be very slightly scattered over the choroid; whilst in those cases in which the corpus vitreum was natural, the pigment was thicker, and of a stronger consistence. With respect to the fourth point, "that the red colour of the vitreous humour is an appearance which occurs after death," we must observe, that no redness of the lens, &c. can be discovered during the life of the children; but, on the other hand, the pupil is so small and contracted as to prevent the possibility of a proper examination of these bodies. From the imperfect state of our knowledge of the morbid appearances of the eye, I have only to beg that medical men will omit no opportunity of making such examinations as may throw light on this important subject. Unfortunately, as the case now stands, I may conclude with Zachar. Platner,—"Discrimen est in hoc ophthalmiæ genere, si exteriores tunicæ laborant, vel si aliæ quæ intus in oculo inflammantur."

Extracts from Letters from a Correspondent in Berlin.—The principal books lately published are Neues praktisches System der speciellen Nosologie, von Harless of Bonn, Erste Halfte, 8vo. p. 634. I have not read this book.

Icones Helminthum Systema Rudolphii† Entozoologicum illustrantes, Auctore Bremser. Viennæ, 1824. I have seen these plates; they are most admirably executed, and form an invaluable addition to Rudolphi's book. Three fasciculi have appeared; the price I do not exactly know; I believe 15s. each fasc.

Lehrbuch der theoretischen Entbindungskunde zu seinem Vorlesungen Von Elias Von Siebold, 8vo. pp. 525. I have not read it; but its chief merit, from a slight glance, appeared to me to be the copious list of authors who have written on midwifery, which is annexed to the work.

A large work on the Diseases of the Spine has recently appeared, by Charles Wenzel, a person well known in the literary world in Germany. It is entitled Carl. Wenzel über die Krankheiten am Ruckgrath mit 8 Kupfertafeln, fol. pp. 460. (price 18 thalers, 2*l.* 14s.) It is a splendid work, but very dear. I have not read it, but I have heard others praise it. The arrangement is something similar to Ollivier's.

There is a work by DIERBACH, Prof. Med. at Hiedelberg, published last year, which I think will interest you. It contains an account of all which Hippocrates knew respecting Materia Medica, with an account of the different substances, and it is called Der Arzneimittel des Hippocrates, oder Versuch einer systematischen Aufzählung Hippocratischen Schriften vorkonmenden Medicamenten, Von Dr J. H. Dierbach, Professor der Med. in Heidelberg, p. 270.

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* Vermischte Abhandlungen aus dem Gebiete der Heilkunde von einer Gesellschaft praktischer Aertze, 1ster Sammlung. Petersburg, 1821, 8. p. 230.

† C. Rudolphi, Professor of Anatomy (Comp. and Hun.) to Univ. of Berlin, Rector of the University this year, a man of extraordinary learning.

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